FIG.1

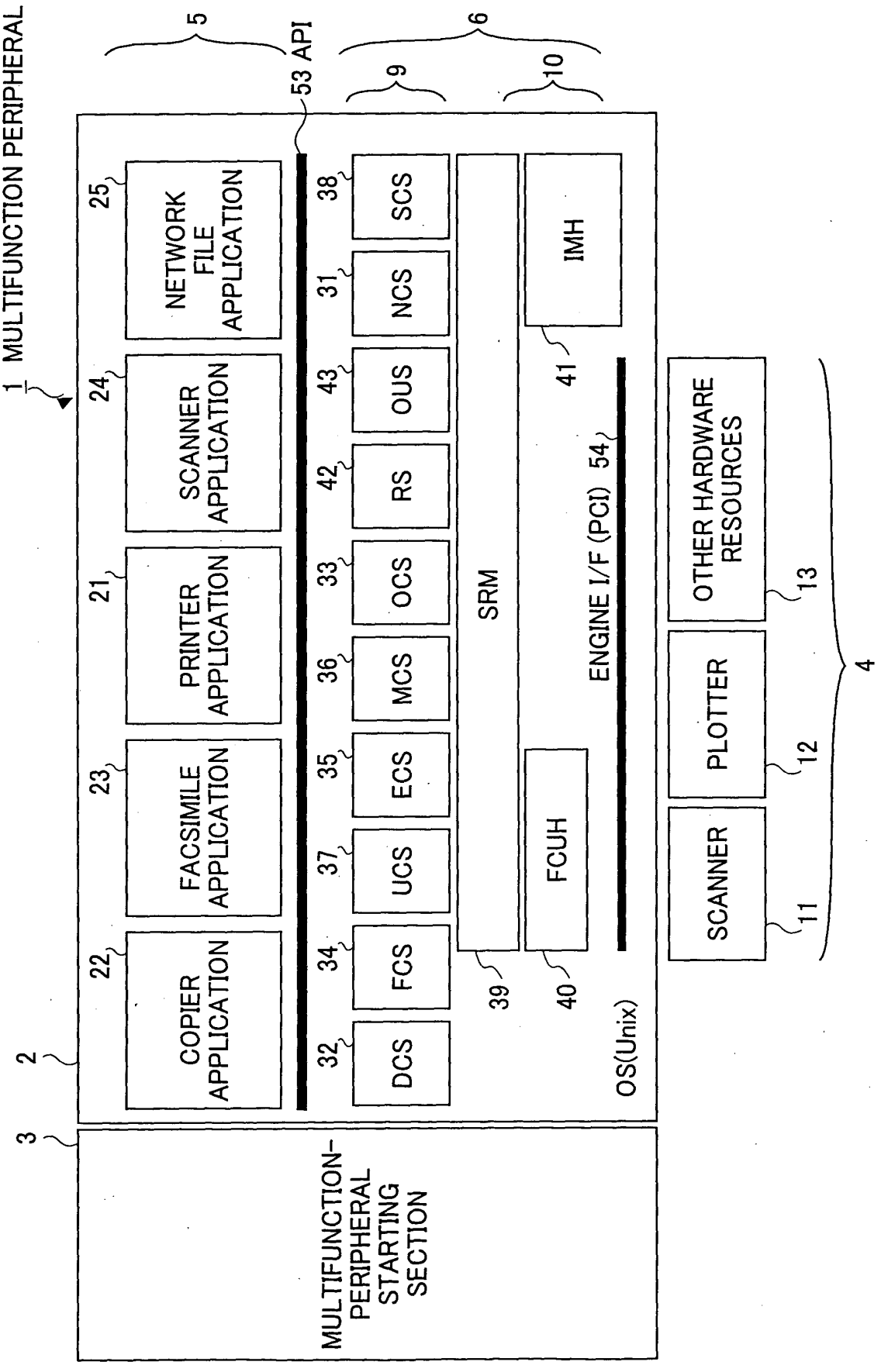
1 MULTIFUNCTION PERIPHERAL
2
3
4
5
6
9
10
11
12
13
22
23
24
25
21
32
34
35
37
36
33
43
42
31
38
41
39
40
53 API
54
COPIER APPLICATION
FACSIMILE APPLICATION
SCANNER APPLICATION
NETWORK FILE APPLICATION
PRINTER APPLICATION
DCS
FCS
ECS
UCS
MCS
OCS
OUS
RS
NCS
SCS
SRM
FCUH
IMH
ENGINE I/F (PCI)
OS(Unix)
MULTIFUNCTION-PERIPHERAL STARTING SECTION
SCANNER
PLOTTER
OTHER HARDWARE RESOURCES

FIG.2

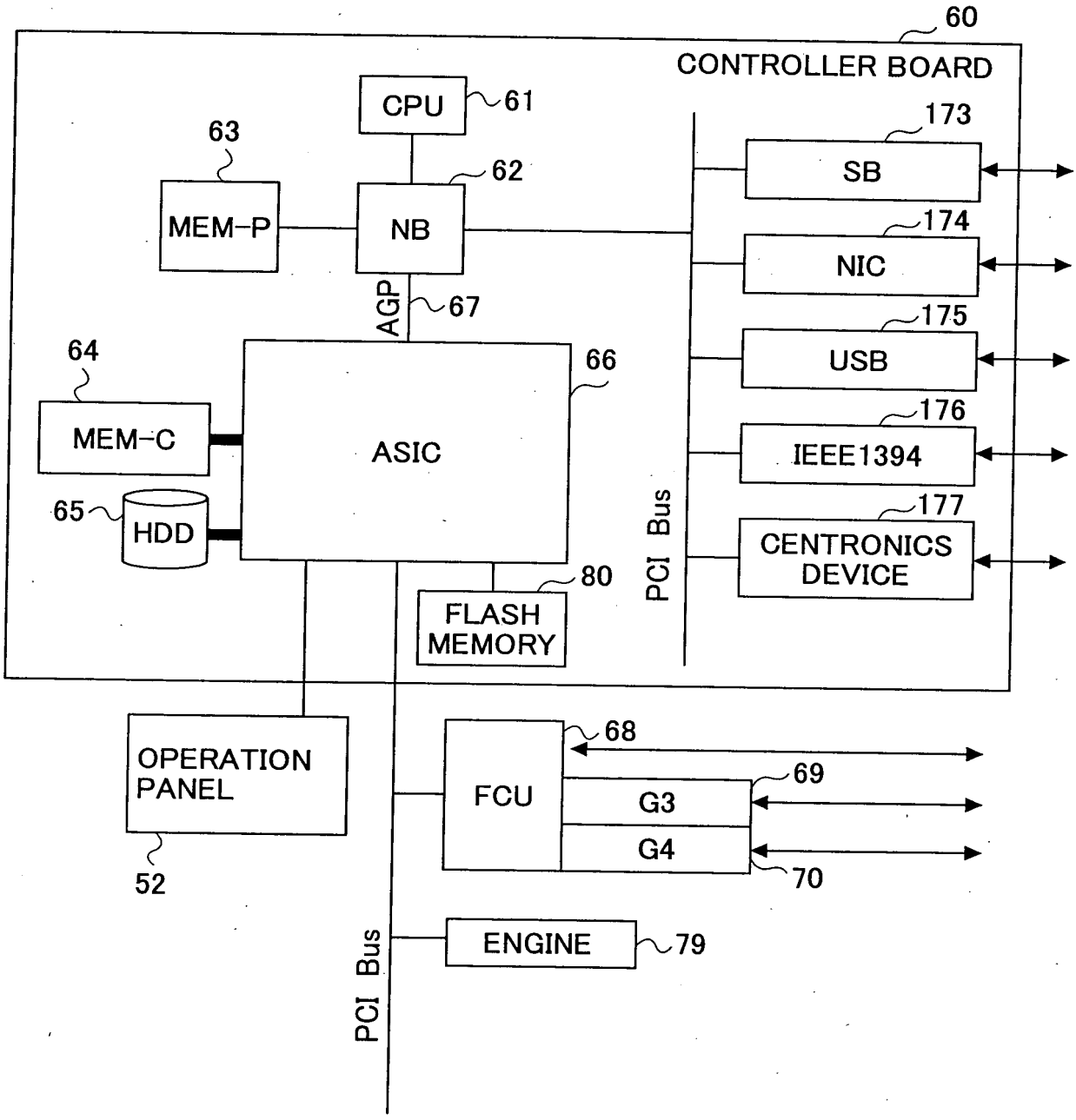
60
CONTROLLER BOARD
CPU
61
63
62
MEM-P
NB
AGP
67
64
66
MEM-C
ASIC
65
HDD
80
FLASH MEMORY
PCI Bus
173
SB
174
NIC
175
USB
176
IEEE1394
177
CENTRONICS DEVICE
OPERATION PANEL
52
68
FCU
69
G3
G4
70
PCI Bus
ENGINE
79

FIG.3

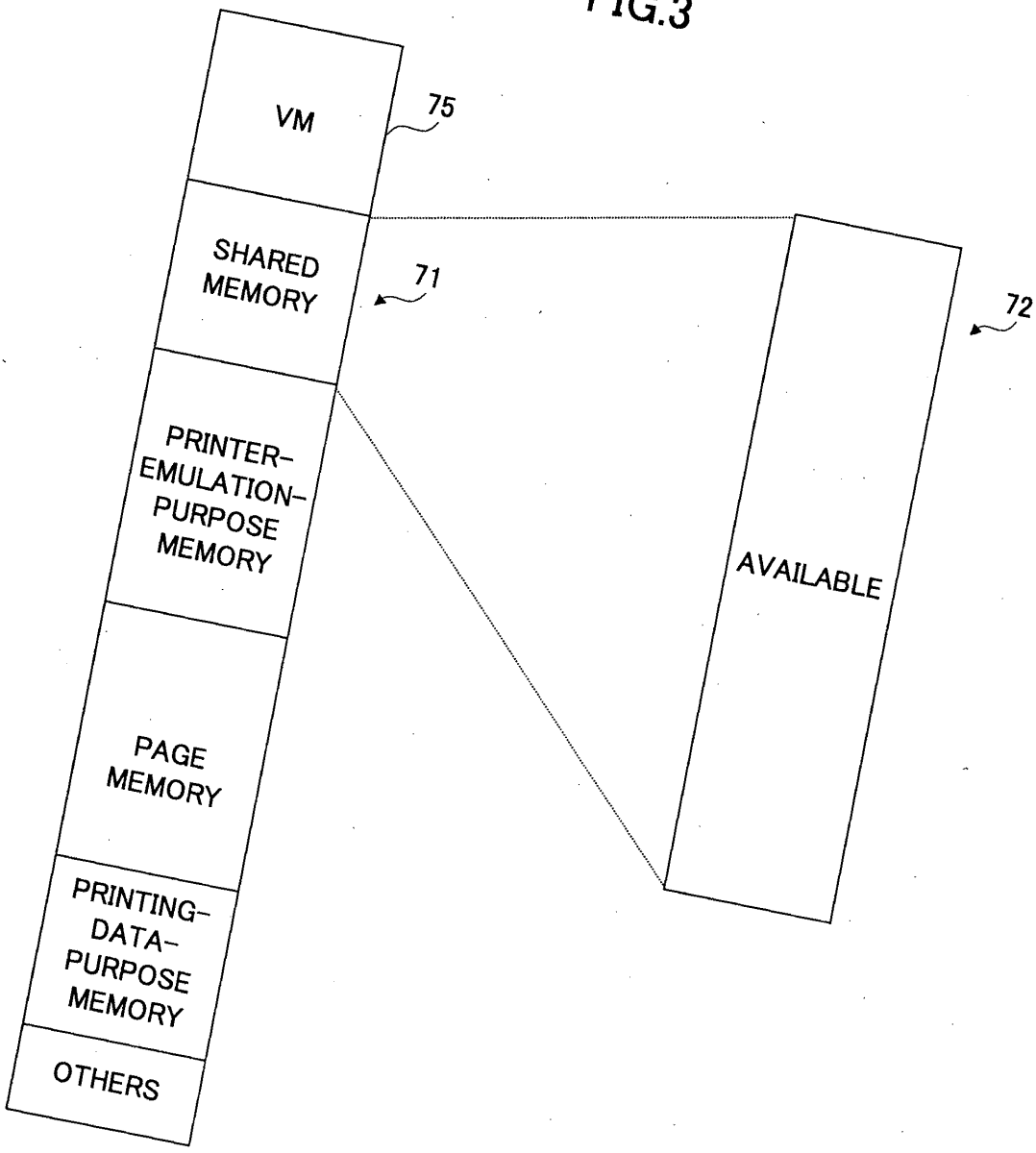
VM
75
SHARED MEMORY
71
72
PRINTER-EMULATION-PURPOSE MEMORY
AVAILABLE
PAGE MEMORY
PRINTING-DATA-PURPOSE MEMORY
OTHERS

FIG.4

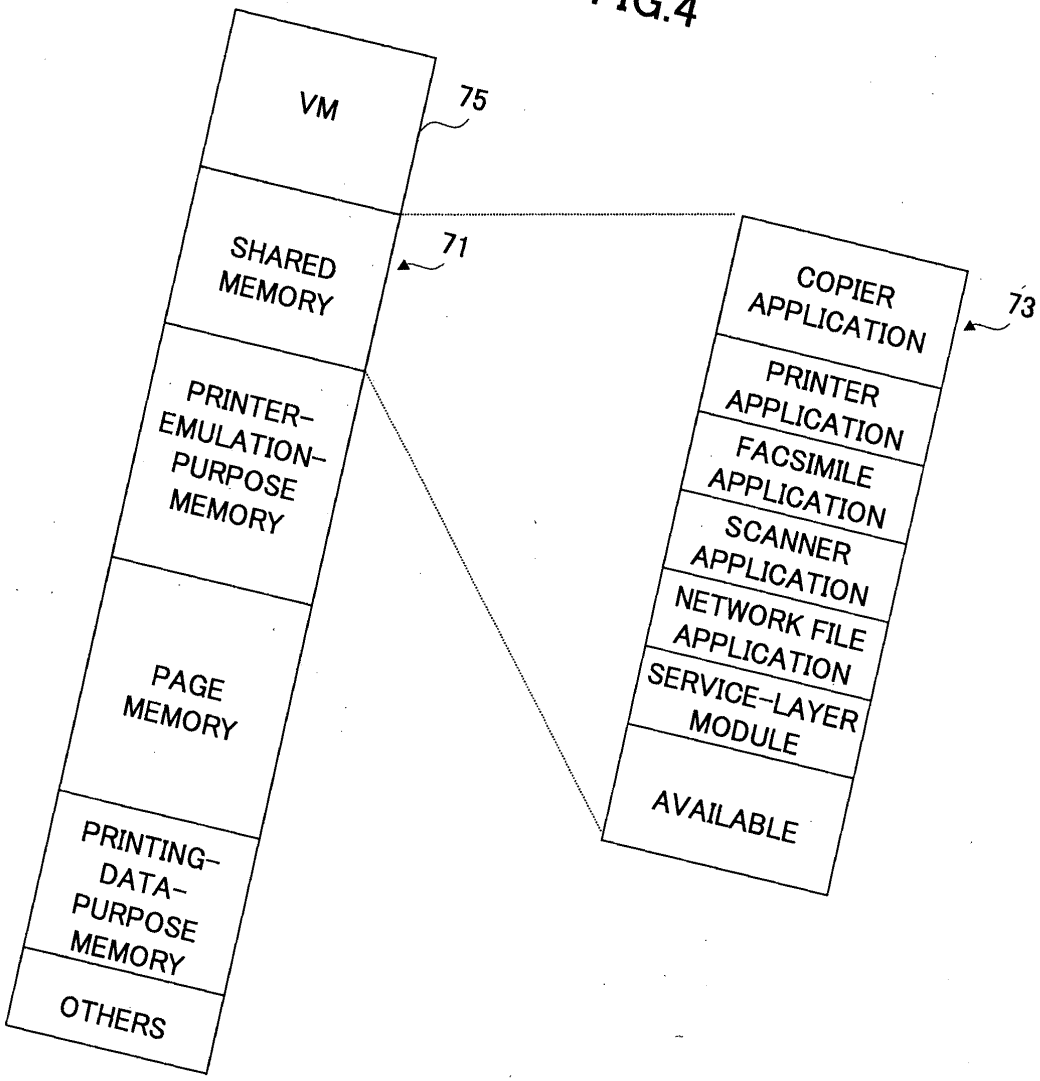
VM
75
SHARED MEMORY
71
PRINTER-EMULATION-PURPOSE MEMORY
PAGE MEMORY
PRINTING-DATA-PURPOSE MEMORY
OTHERS
COPIER APPLICATION
73
PRINTER APPLICATION
FACSIMILE APPLICATION
SCANNER APPLICATION
NETWORK FILE APPLICATION
SERVICE-LAYER MODULE
AVAILABLE

FIG.5

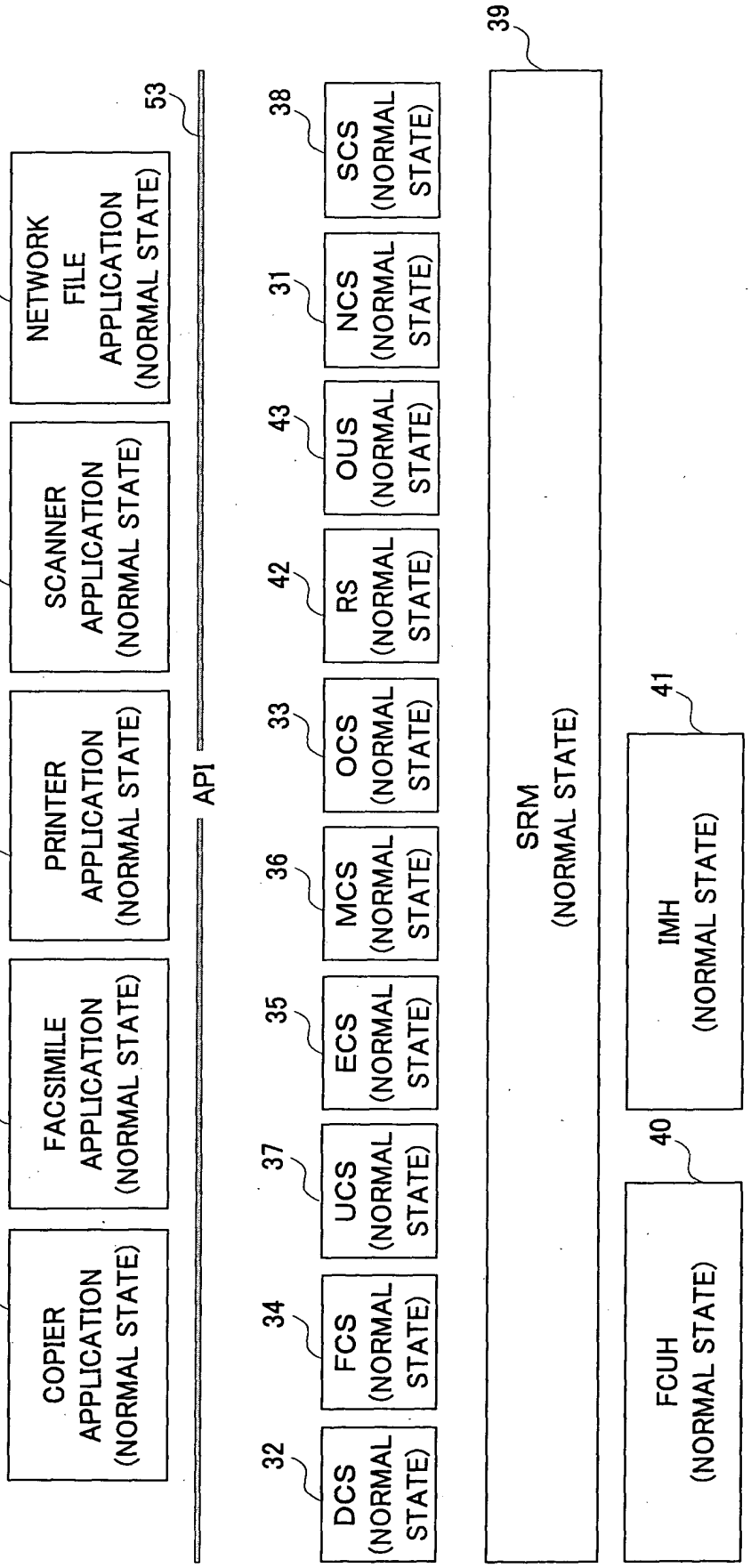
22
COPIER APPLICATION (NORMAL STATE)
23
FACSIMILE APPLICATION (NORMAL STATE)
21
PRINTER APPLICATION (NORMAL STATE)
24
SCANNER APPLICATION (NORMAL STATE)
25
NETWORK FILE APPLICATION (NORMAL STATE)
53
API
32
DCS (NORMAL STATE)
34
FCS (NORMAL STATE)
37
UCS (NORMAL STATE)
35
ECS (NORMAL STATE)
36
MCS (NORMAL STATE)
33
OCS (NORMAL STATE)
42
RS (NORMAL STATE)
43
OUS (NORMAL STATE)
31
NCS (NORMAL STATE)
38
SCS (NORMAL STATE)
39
SRM (NORMAL STATE)
40
FCUH (NORMAL STATE)
41
IMH (NORMAL STATE)

FIG.6

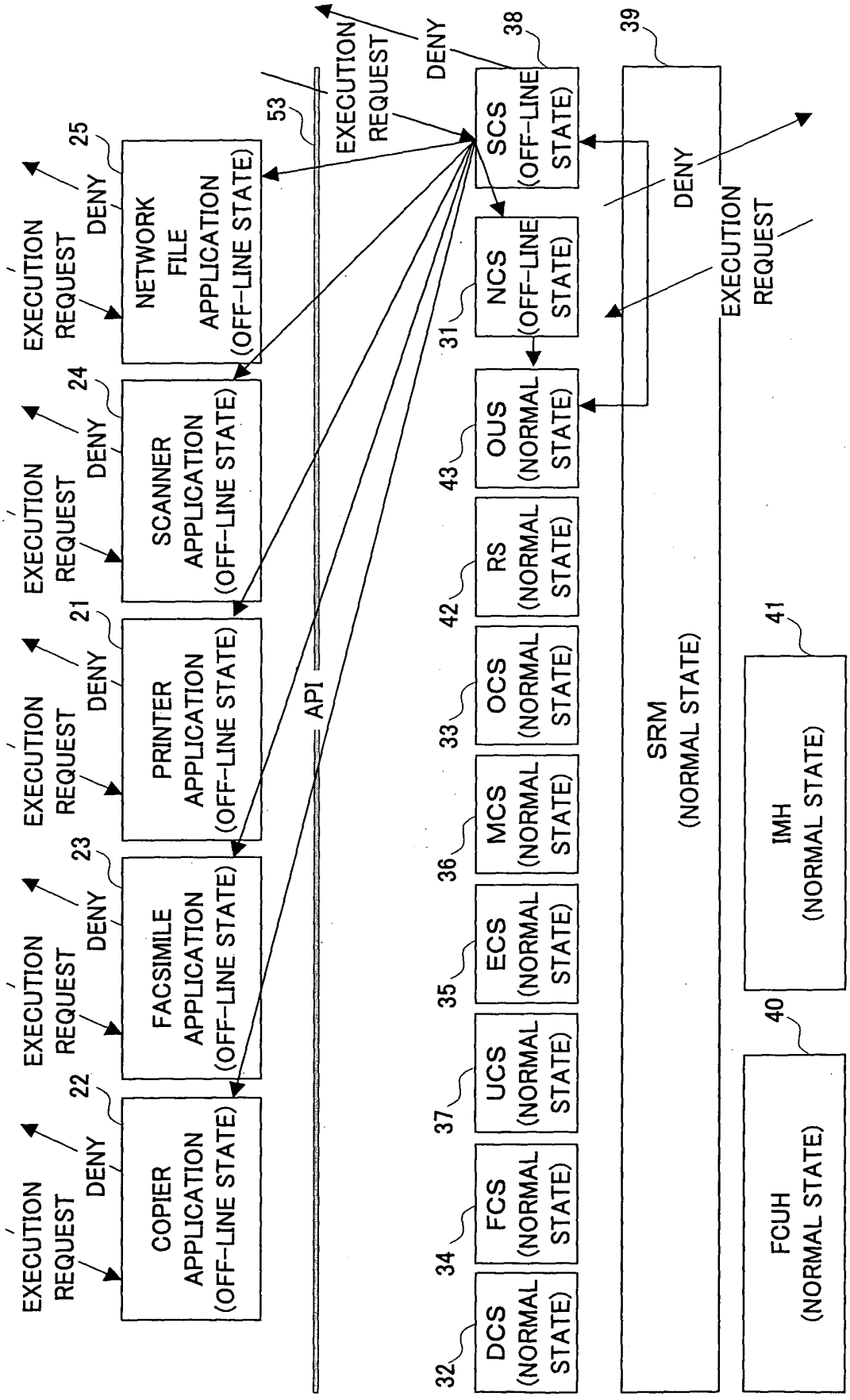
EXECUTION REQUEST
DENY
COPIER APPLICATION (OFF-LINE STATE)
22
FACSIMILE APPLICATION (OFF-LINE STATE)
23
PRINTER APPLICATION (OFF-LINE STATE)
21
SCANNER APPLICATION (OFF-LINE STATE)
24
NETWORK FILE APPLICATION (OFF-LINE STATE)
25
API
53
SCS (OFF-LINE STATE)
38
NCS (OFF-LINE STATE)
31
OUS (NORMAL STATE)
43
RS (NORMAL STATE)
42
OCS (NORMAL STATE)
33
MCS (NORMAL STATE)
36
ECS (NORMAL STATE)
35
UCS (NORMAL STATE)
37
FCS (NORMAL STATE)
34
DCS (NORMAL STATE)
32
SRM (NORMAL STATE)
39
IMH (NORMAL STATE)
41
FCUH (NORMAL STATE)
40

FIG.7

COPIER APPLICATION	FACSIMILE APPLICATION	PRINTER APPLICATION	SCANNER APPLICATION	NETWORK FILE APPLICATION	SCS	NCS
· SCAN · PRINT · LS ACCUMULATION	· LS ACCUMULATION · TRANSMISSION AND RECEPTION · PRINTING OF RECEIVED DOCUMENT	· PRINT · LS ACCUMULATION	· SCAN · LS ACCUMULATION	· PRINT · LS ACCUMULATION	· MASKING OF OPERATION-PANEL EVENT · REQUEST FOR JOB EXECUTION	· COMMUNICATION EVENT

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FIG.8

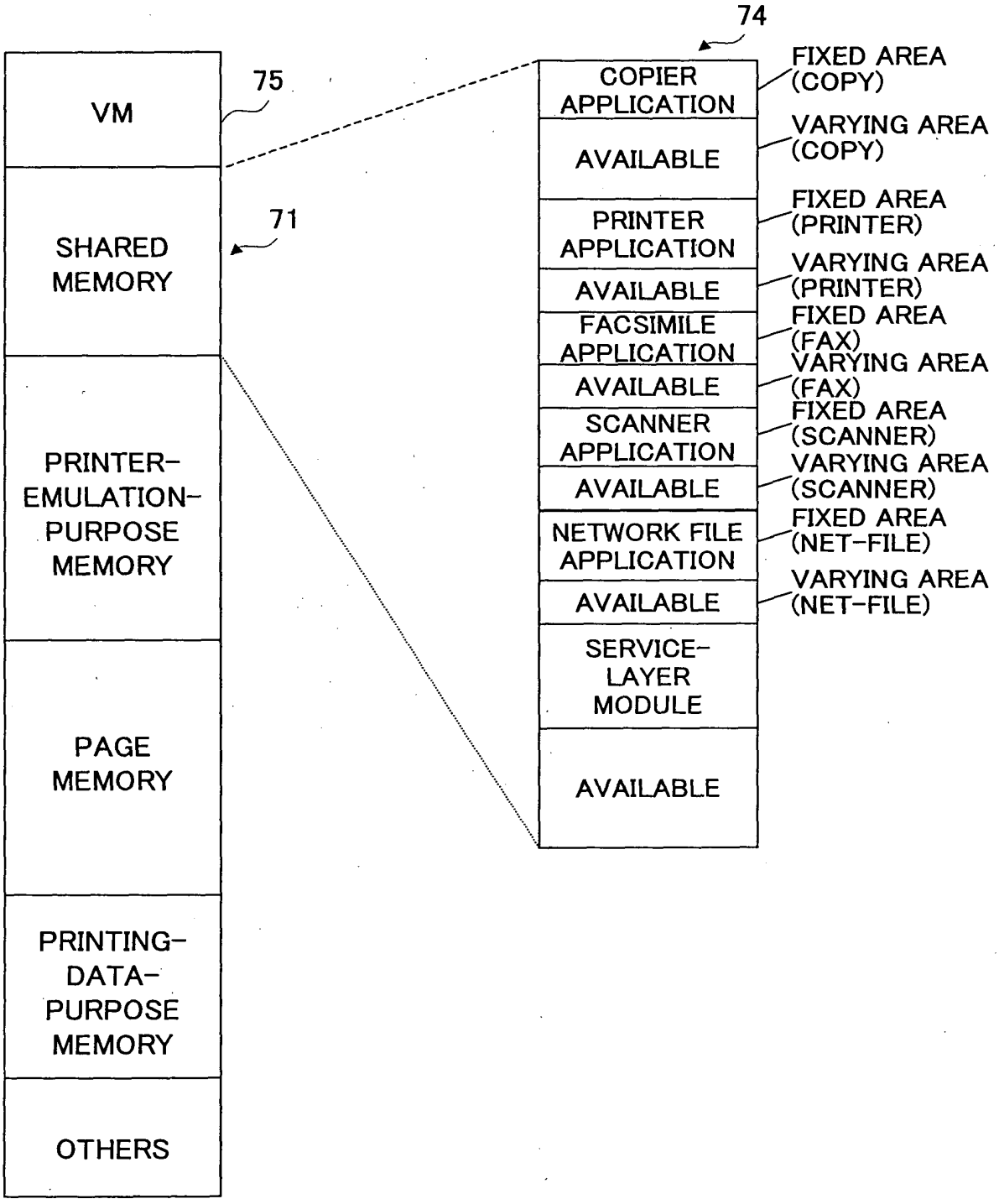

74
VM
75
SHARED MEMORY
71
PRINTER-EMULATION-PURPOSE MEMORY
PAGE MEMORY
PRINTING-DATA-PURPOSE MEMORY
OTHERS
COPIER APPLICATION
AVAILABLE
PRINTER APPLICATION
AVAILABLE
FACSIMILE APPLICATION
AVAILABLE
SCANNER APPLICATION
AVAILABLE
NETWORK FILE APPLICATION
AVAILABLE
SERVICE-LAYER MODULE
AVAILABLE
FIXED AREA (COPY)
VARYING AREA (COPY)
FIXED AREA (PRINTER)
VARYING AREA (PRINTER)
FIXED AREA (FAX)
VARYING AREA (FAX)
FIXED AREA (SCANNER)
VARYING AREA (SCANNER)
FIXED AREA (NET-FILE)
VARYING AREA (NET-FILE)

FIG.9

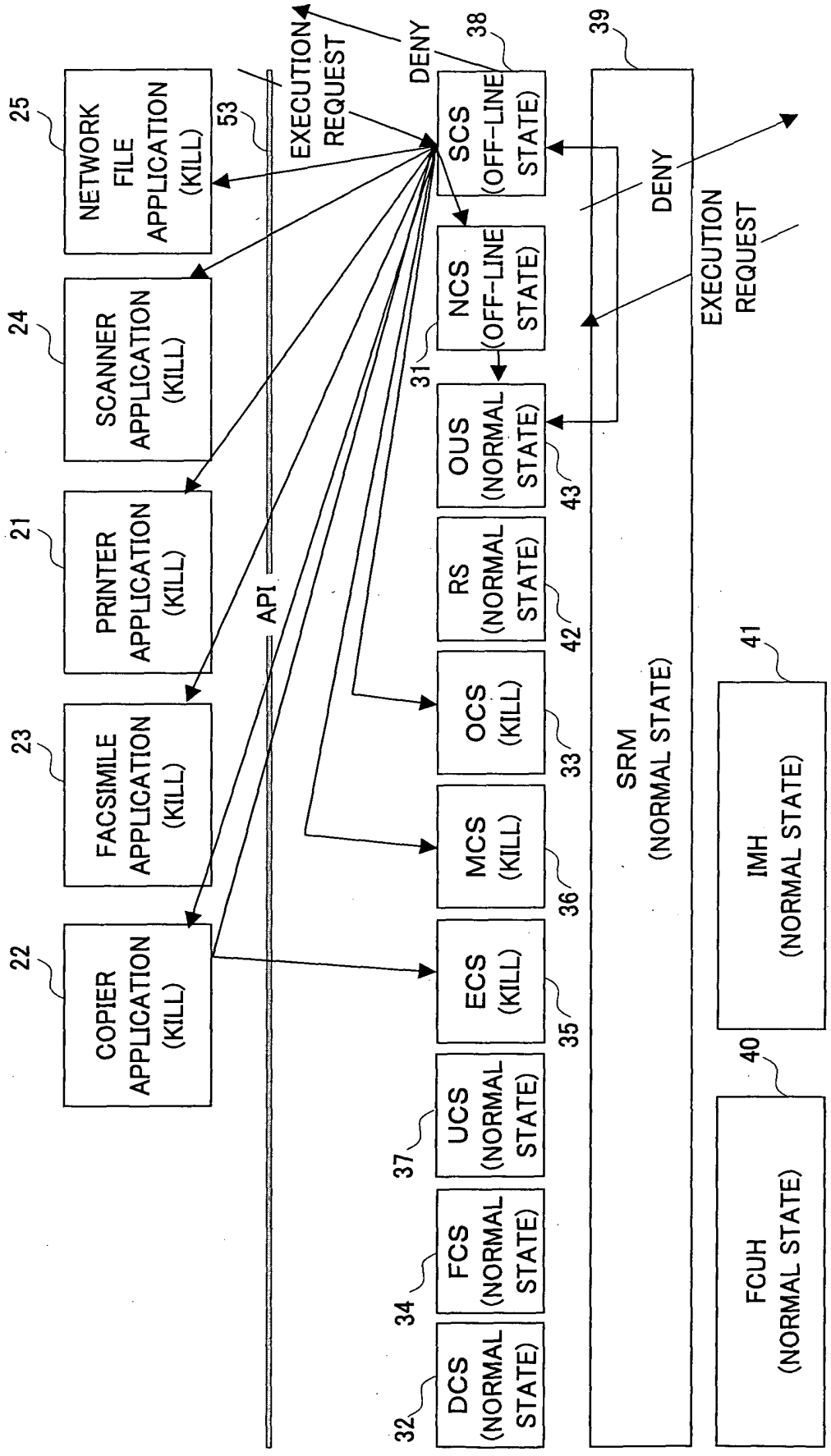

NETWORK FILE APPLICATION (KILL)
SCANNER APPLICATION (KILL)
PRINTER APPLICATION (KILL)
FACSIMILE APPLICATION (KILL)
COPIER APPLICATION (KILL)
API
EXECUTION REQUEST
DENY
SCS (OFF-LINE STATE)
NCS (OFF-LINE STATE)
OUS (NORMAL STATE)
RS (NORMAL STATE)
OCS (KILL)
MCS (KILL)
ECS (KILL)
UCS (NORMAL STATE)
FCS (NORMAL STATE)
DCS (NORMAL STATE)
SRM (NORMAL STATE)
IMH (NORMAL STATE)
FCUH (NORMAL STATE)
25
53
24
21
23
22
38
39
31
43
42
33
36
35
37
34
32
41
40

FIG.10

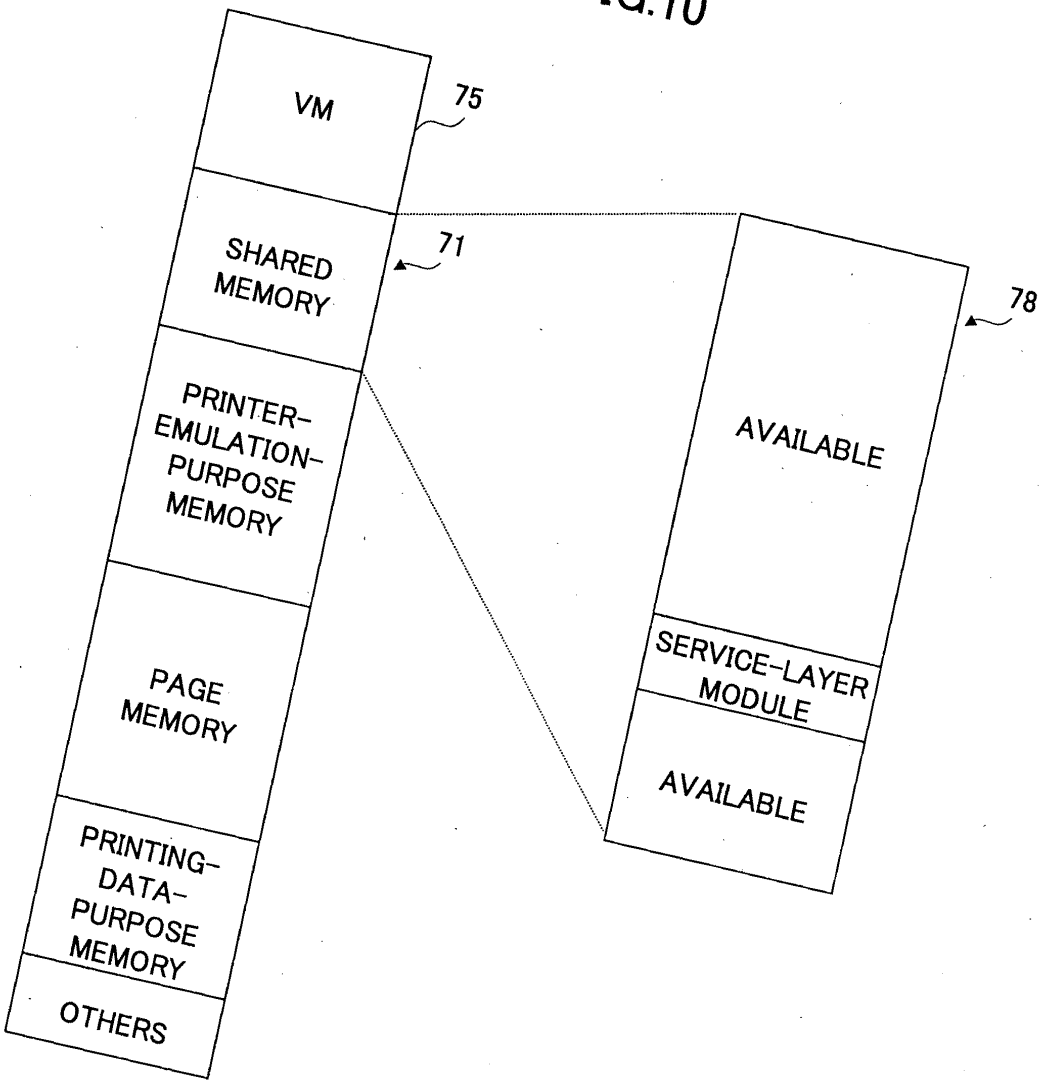

VM
75
SHARED MEMORY
71
PRINTER-EMULATION-PURPOSE MEMORY
PAGE MEMORY
PRINTING-DATA-PURPOSE MEMORY
OTHERS
78
AVAILABLE
SERVICE-LAYER MODULE
AVAILABLE

FIG.11

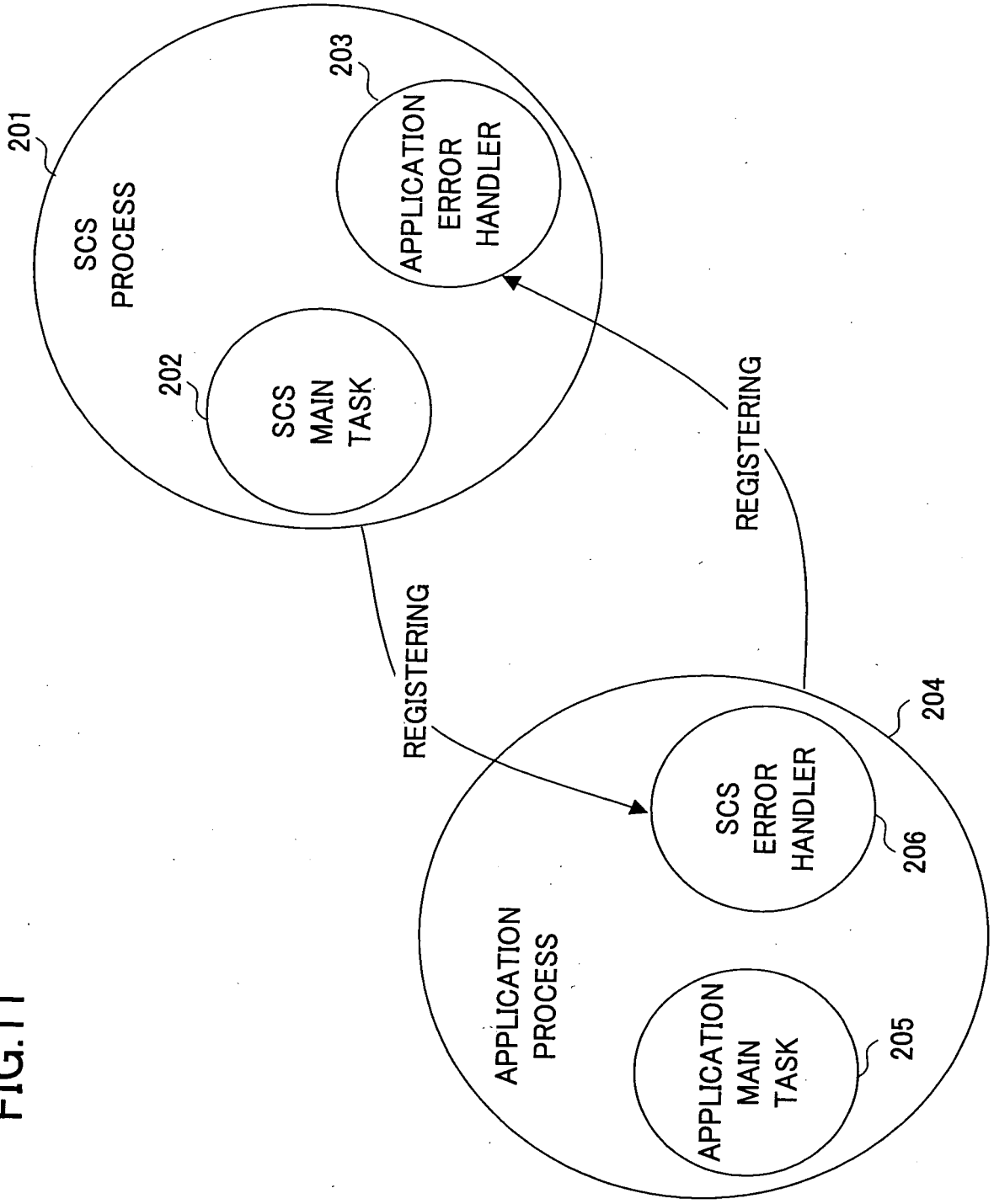

201
SCS PROCESS
202
SCS MAIN TASK
203
APPLICATION ERROR HANDLER
REGISTERING
REGISTERING
204
APPLICATION PROCESS
205
APPLICATION MAIN TASK
206
SCS ERROR HANDLER

FIG.12

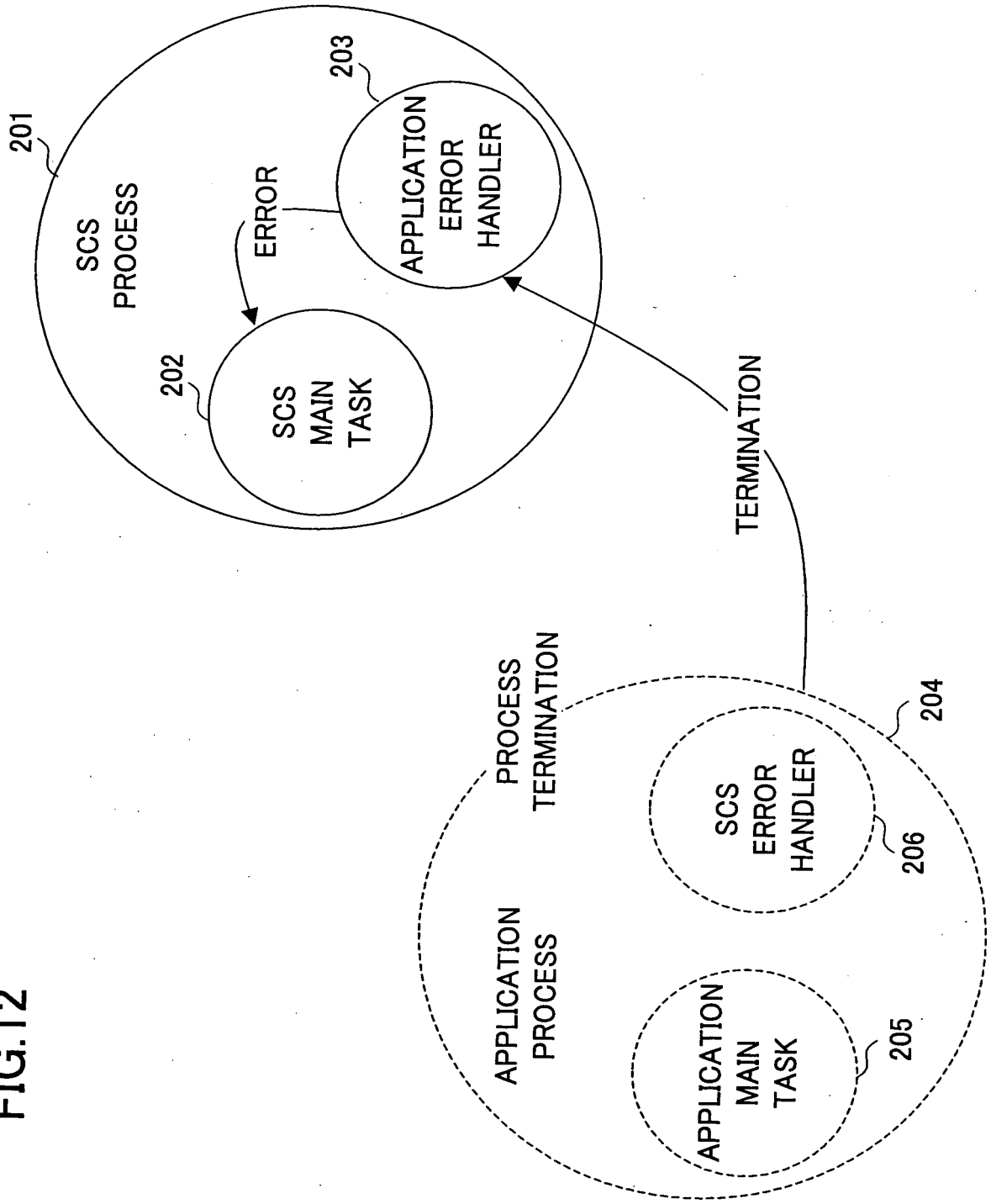

201
SCS PROCESS
202
SCS MAIN TASK
ERROR
203
APPLICATION ERROR HANDLER
TERMINATION
PROCESS TERMINATION
204
APPLICATION PROCESS
205
APPLICATION MAIN TASK
206
SCS ERROR HANDLER

FIG.13

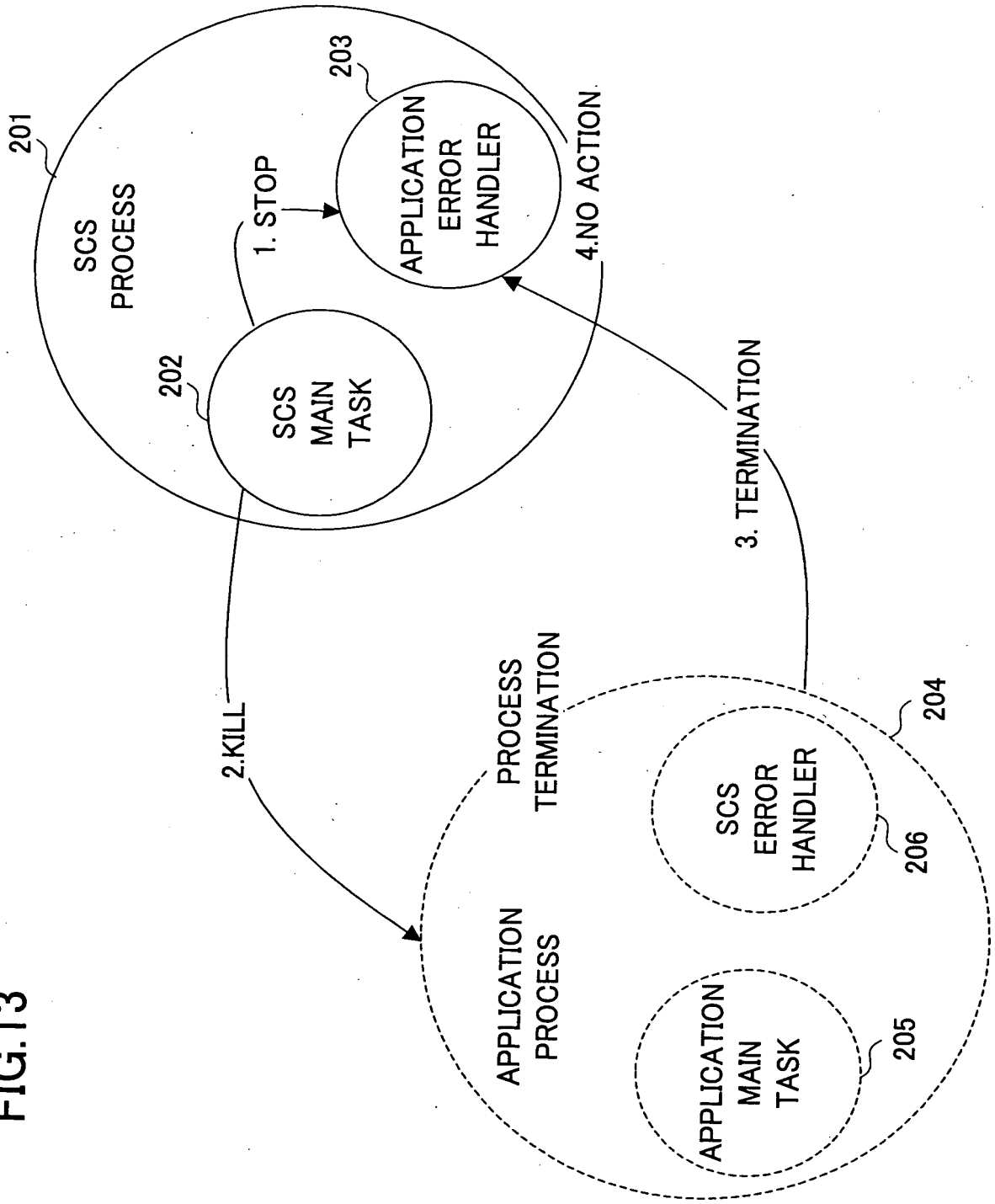

201
SCS PROCESS
202
SCS MAIN TASK
203
APPLICATION ERROR HANDLER
1. STOP
2.KILL
3. TERMINATION
4.NO ACTION
PROCESS TERMINATION
204
APPLICATION PROCESS
205
APPLICATION MAIN TASK
206
SCS ERROR HANDLER

FIG.14

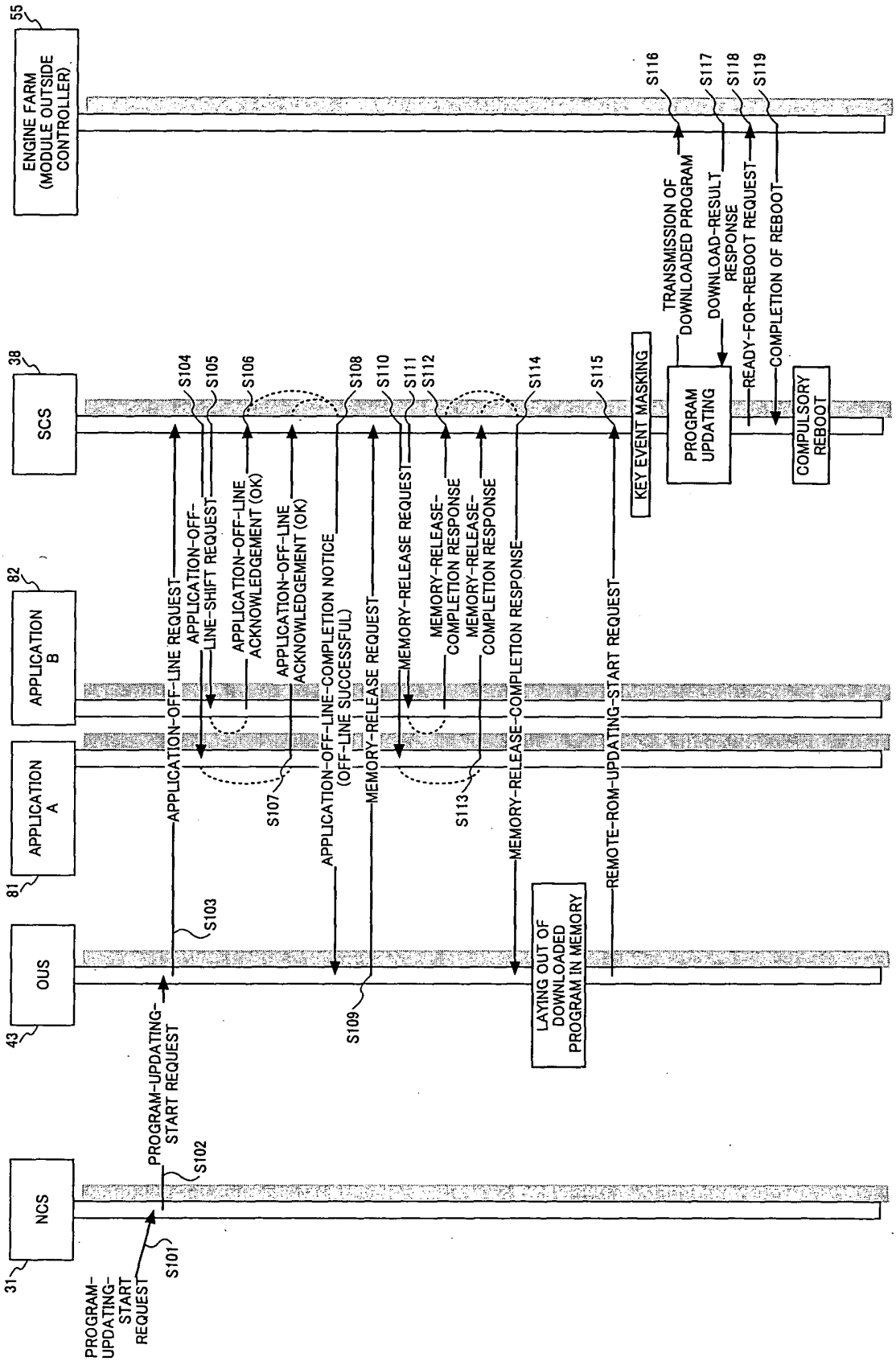

ENGINE FARM (MODULE OUTSIDE CONTROLLER)
55
SCS
38
APPLICATION B
82
APPLICATION A
81
OUS
43
NCS
31
PROGRAM-UPDATING-START REQUEST
S101
PROGRAM-UPDATING-START REQUEST
S102
APPLICATION-OFF-LINE REQUEST
S103
APPLICATION-OFF-LINE ACKNOWLEDGEMENT (OK)
S104
APPLICATION-OFF-LINE ACKNOWLEDGEMENT (OK)
S105
APPLICATION-OFF-LINE-COMPLETION NOTICE (OFF-LINE SUCCESSFUL)
S106
MEMORY-RELEASE REQUEST
S107
MEMORY-RELEASE-COMPLETION RESPONSE
S108
MEMORY-RELEASE-COMPLETION RESPONSE
S109
MEMORY-RELEASE-COMPLETION RESPONSE
S110
REMOTE-ROM-UPDATING-START REQUEST
S111
S112
S113
S114
S115
S116
S117
S118
S119
APPLICATION-OFF-LINE SHIFT REQUEST
KEY EVENT MASKING
LAYING OUT OF DOWNLOADED PROGRAM IN MEMORY
TRANSMISSION OF DOWNLOADED PROGRAM
DOWNLOAD-RESULT RESPONSE
READY-FOR-REBOOT REQUEST
COMPLETION OF REBOOT
PROGRAM UPDATING
COMPULSORY REBOOT

FIG.15

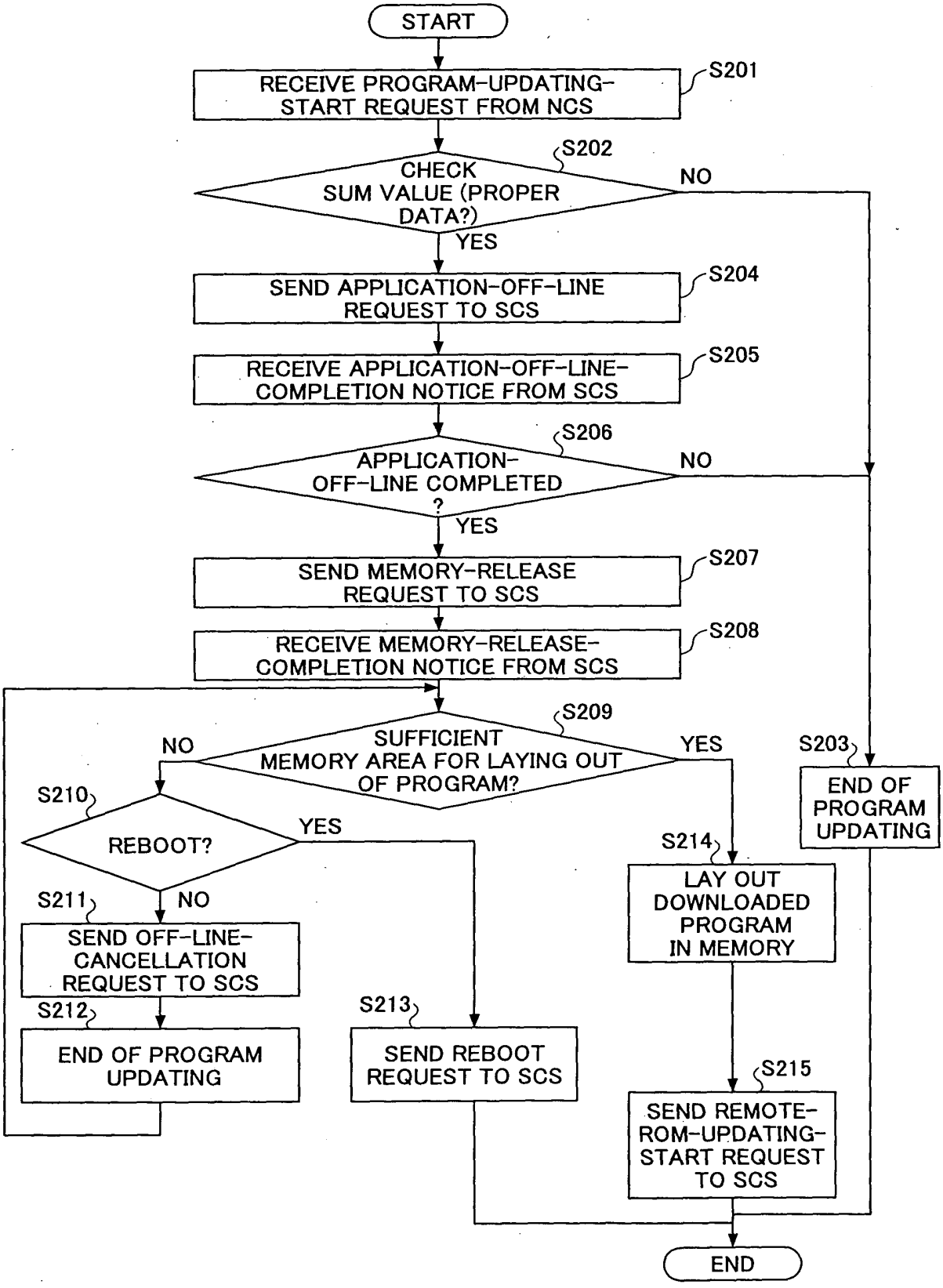

START
RECEIVE PROGRAM-UPDATING-START REQUEST FROM NCS
S201
CHECK SUM VALUE (PROPER DATA?)
S202
NO
YES
SEND APPLICATION-OFF-LINE REQUEST TO SCS
S204
RECEIVE APPLICATION-OFF-LINE-COMPLETION NOTICE FROM SCS
S205
APPLICATION-OFF-LINE COMPLETED ?
S206
NO
YES
SEND MEMORY-RELEASE REQUEST TO SCS
S207
RECEIVE MEMORY-RELEASE-COMPLETION NOTICE FROM SCS
S208
SUFFICIENT MEMORY AREA FOR LAYING OUT OF PROGRAM?
S209
NO
YES
S203
END OF PROGRAM UPDATING
REBOOT?
S210
YES
NO
S211
SEND OFF-LINE-CANCELLATION REQUEST TO SCS
S212
END OF PROGRAM UPDATING
S213
SEND REBOOT REQUEST TO SCS
S214
LAY OUT DOWNLOADED PROGRAM IN MEMORY
S215
SEND REMOTE-ROM-UPDATING-START REQUEST TO SCS
END

FIG.16

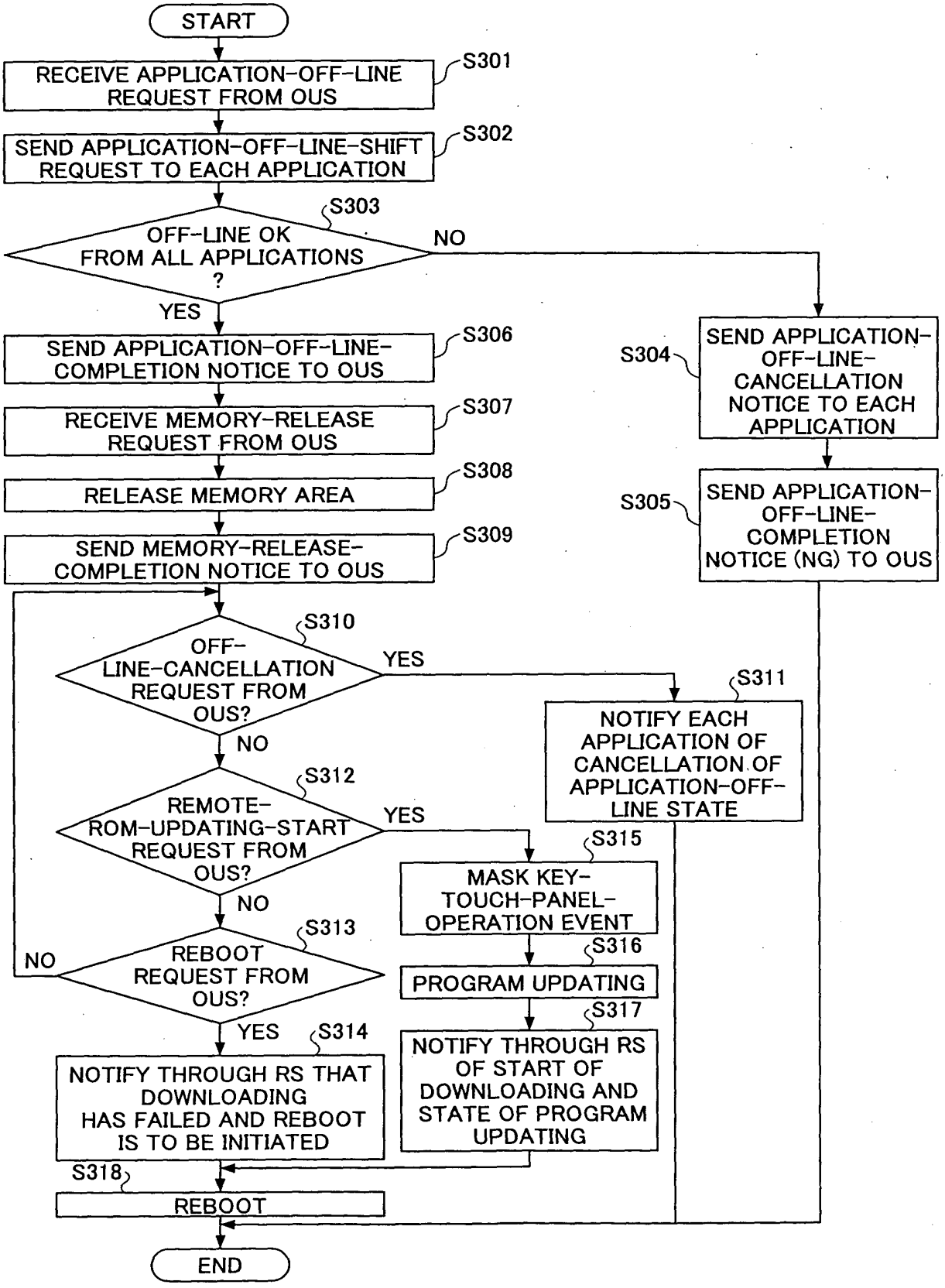

START
RECEIVE APPLICATION-OFF-LINE REQUEST FROM OUS
S301
SEND APPLICATION-OFF-LINE-SHIFT REQUEST TO EACH APPLICATION
S302
S303
OFF-LINE OK FROM ALL APPLICATIONS ?
NO
YES
SEND APPLICATION-OFF-LINE-COMPLETION NOTICE TO OUS
S306
RECEIVE MEMORY-RELEASE REQUEST FROM OUS
S307
RELEASE MEMORY AREA
S308
SEND MEMORY-RELEASE-COMPLETION NOTICE TO OUS
S309
S304
SEND APPLICATION-OFF-LINE-CANCELLATION NOTICE TO EACH APPLICATION
S305
SEND APPLICATION-OFF-LINE-COMPLETION NOTICE (NG) TO OUS
S310
OFF-LINE-CANCELLATION REQUEST FROM OUS?
YES
NO
S311
NOTIFY EACH APPLICATION OF CANCELLATION OF APPLICATION-OFF-LINE STATE
S312
REMOTE-ROM-UPDATING-START REQUEST FROM OUS?
YES
NO
S315
MASK KEY-TOUCH-PANEL-OPERATION EVENT
S316
PROGRAM UPDATING
S317
NOTIFY THROUGH RS OF START OF DOWNLOADING AND STATE OF PROGRAM UPDATING
S313
NO
REBOOT REQUEST FROM OUS?
YES
S314
NOTIFY THROUGH RS THAT DOWNLOADING HAS FAILED AND REBOOT IS TO BE INITIATED
S318
REBOOT
END

FIG.17

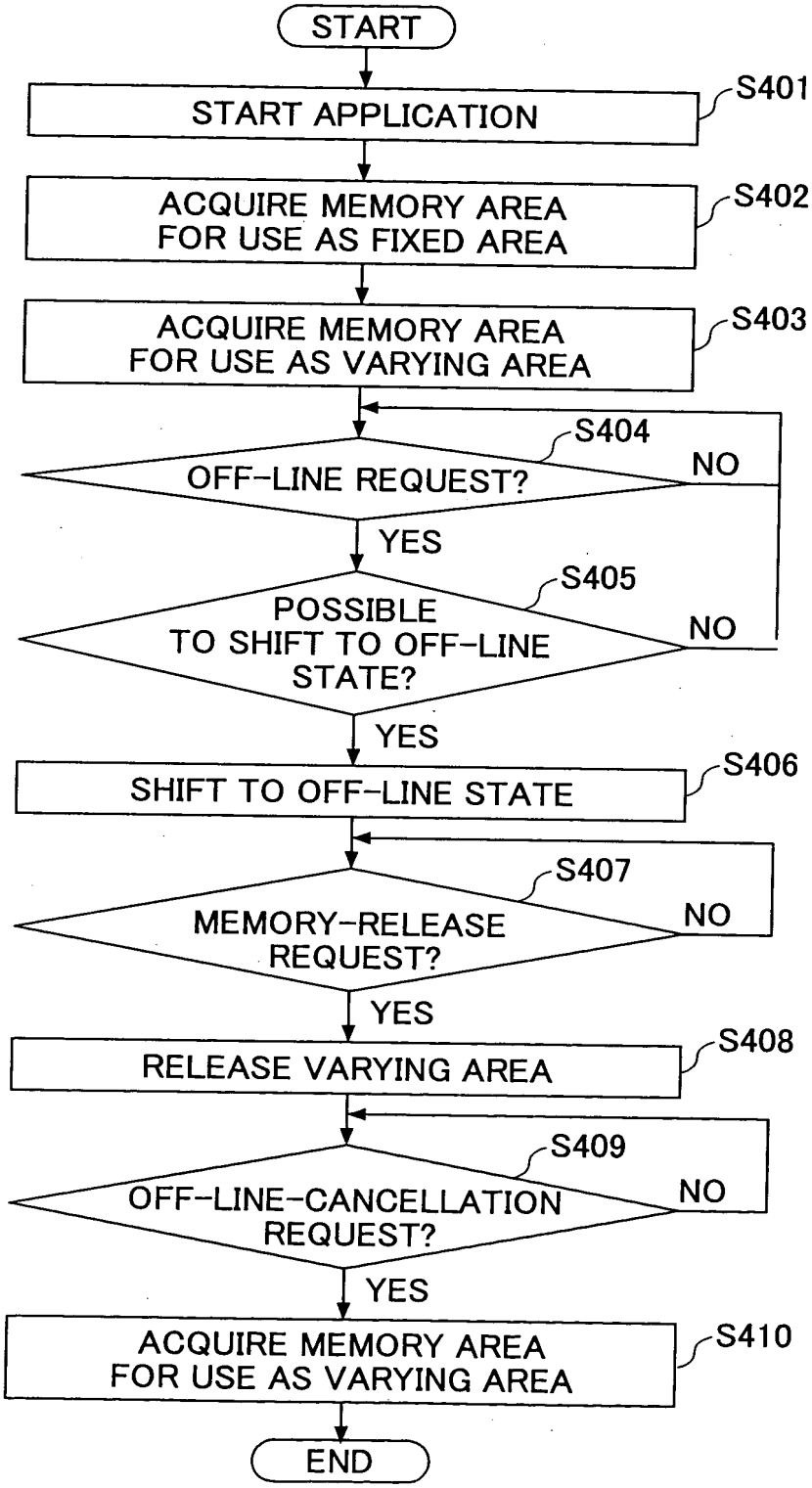

START
START APPLICATION
S401
ACQUIRE MEMORY AREA FOR USE AS FIXED AREA
S402
ACQUIRE MEMORY AREA FOR USE AS VARYING AREA
S403
S404
OFF-LINE REQUEST?
NO
YES
S405
POSSIBLE TO SHIFT TO OFF-LINE STATE?
NO
YES
SHIFT TO OFF-LINE STATE
S406
S407
MEMORY-RELEASE REQUEST?
NO
YES
RELEASE VARYING AREA
S408
S409
OFF-LINE-CANCELLATION REQUEST?
NO
YES
ACQUIRE MEMORY AREA FOR USE AS VARYING AREA
S410
END

FIG.18

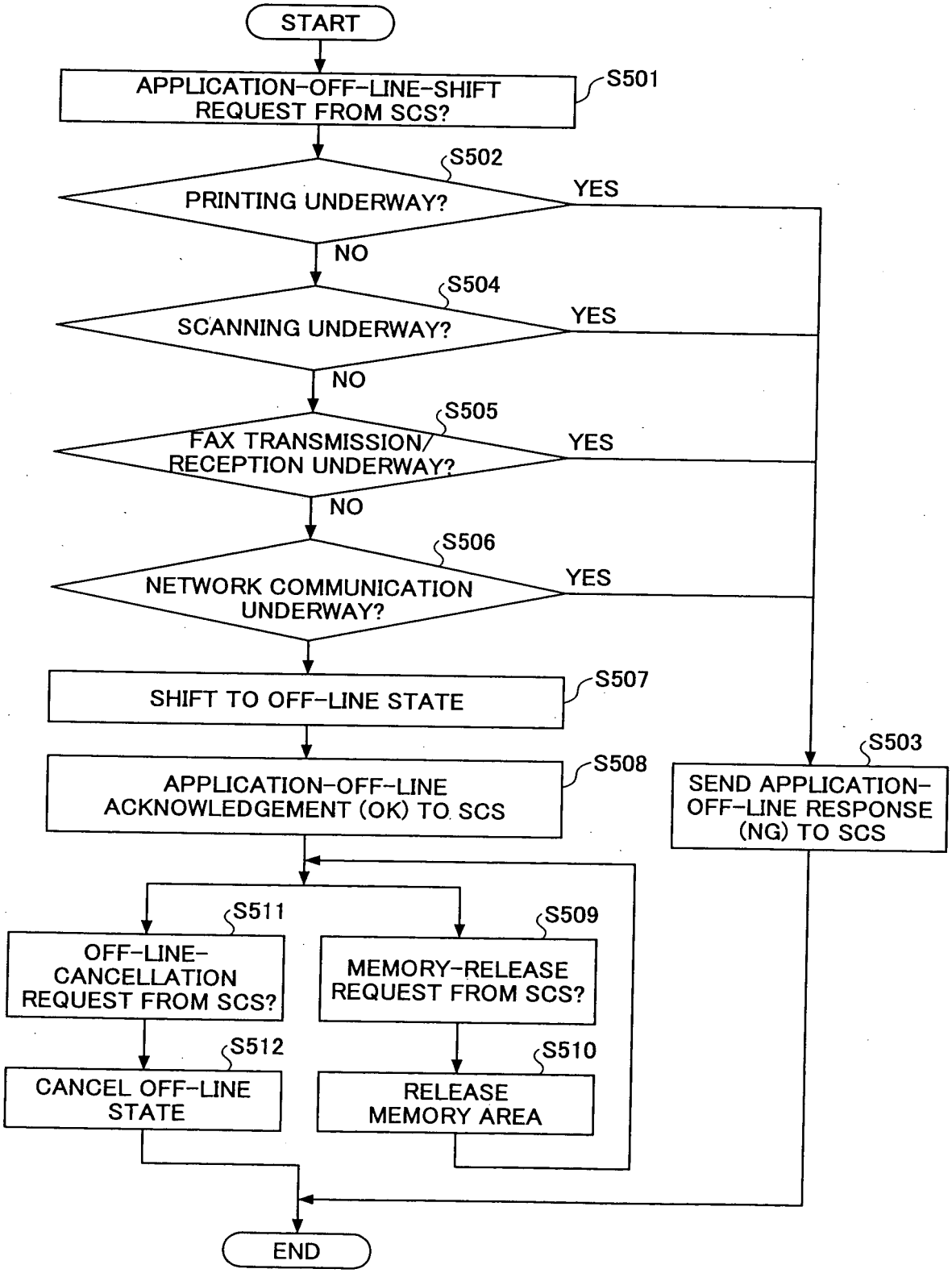

START
APPLICATION-OFF-LINE-SHIFT REQUEST FROM SCS?
S501
PRINTING UNDERWAY?
S502
YES
NO
SCANNING UNDERWAY?
S504
YES
NO
FAX TRANSMISSION/ RECEPTION UNDERWAY?
S505
YES
NO
NETWORK COMMUNICATION UNDERWAY?
S506
YES
SHIFT TO OFF-LINE STATE
S507
APPLICATION-OFF-LINE ACKNOWLEDGEMENT (OK) TO SCS
S508
SEND APPLICATION-OFF-LINE RESPONSE (NG) TO SCS
S503
OFF-LINE-CANCELLATION REQUEST FROM SCS?
S511
MEMORY-RELEASE REQUEST FROM SCS?
S509
CANCEL OFF-LINE STATE
S512
RELEASE MEMORY AREA
S510
END

FIG.19

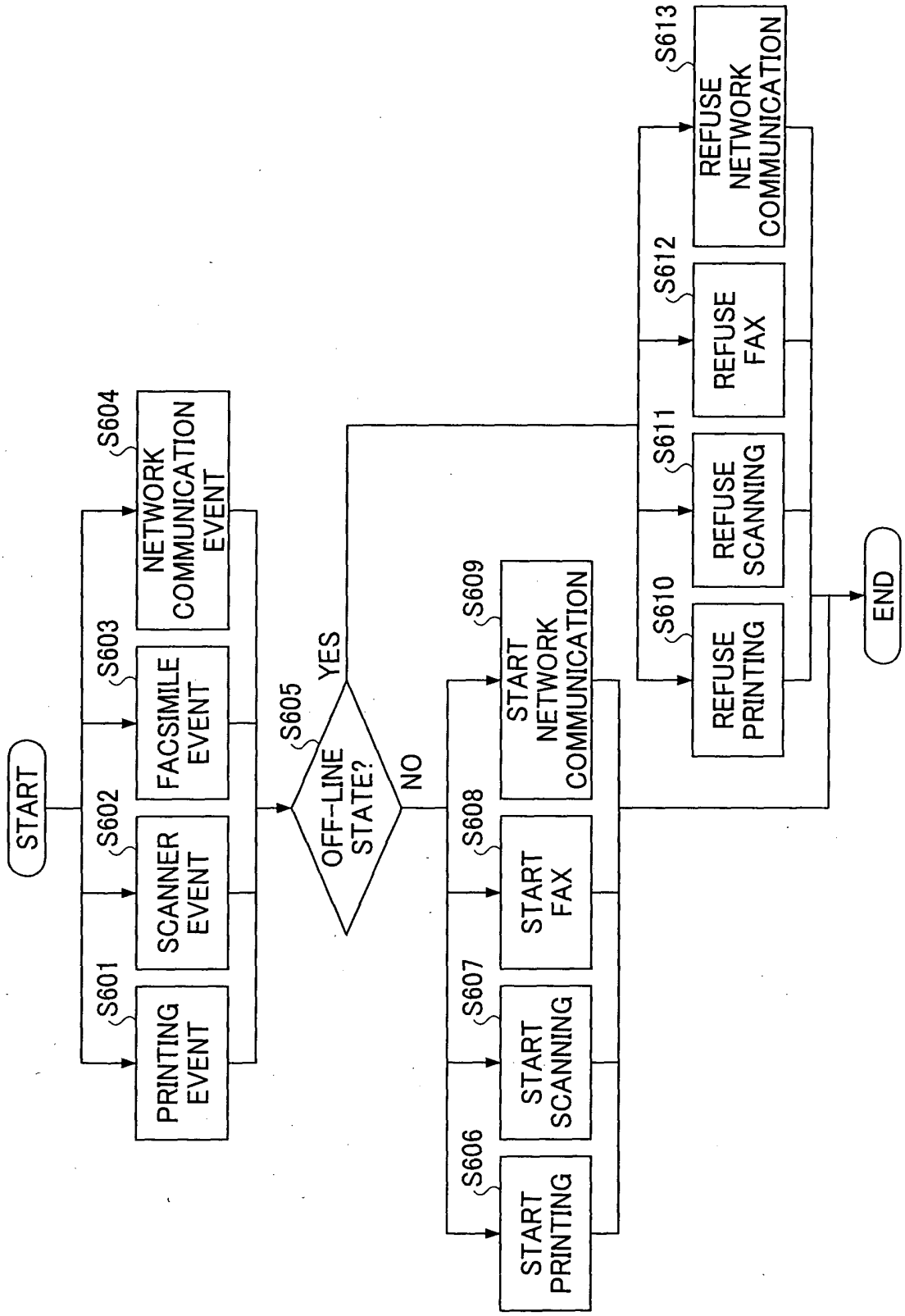

START
S601
PRINTING EVENT
S602
SCANNER EVENT
S603
FACSIMILE EVENT
S604
NETWORK COMMUNICATION EVENT
S605
OFF-LINE STATE?
YES
NO
S606
START PRINTING
S607
START SCANNING
S608
START FAX
S609
START NETWORK COMMUNICATION
S610
REFUSE PRINTING
S611
REFUSE SCANNING
S612
REFUSE FAX
S613
REFUSE NETWORK COMMUNICATION
END

FIG.20

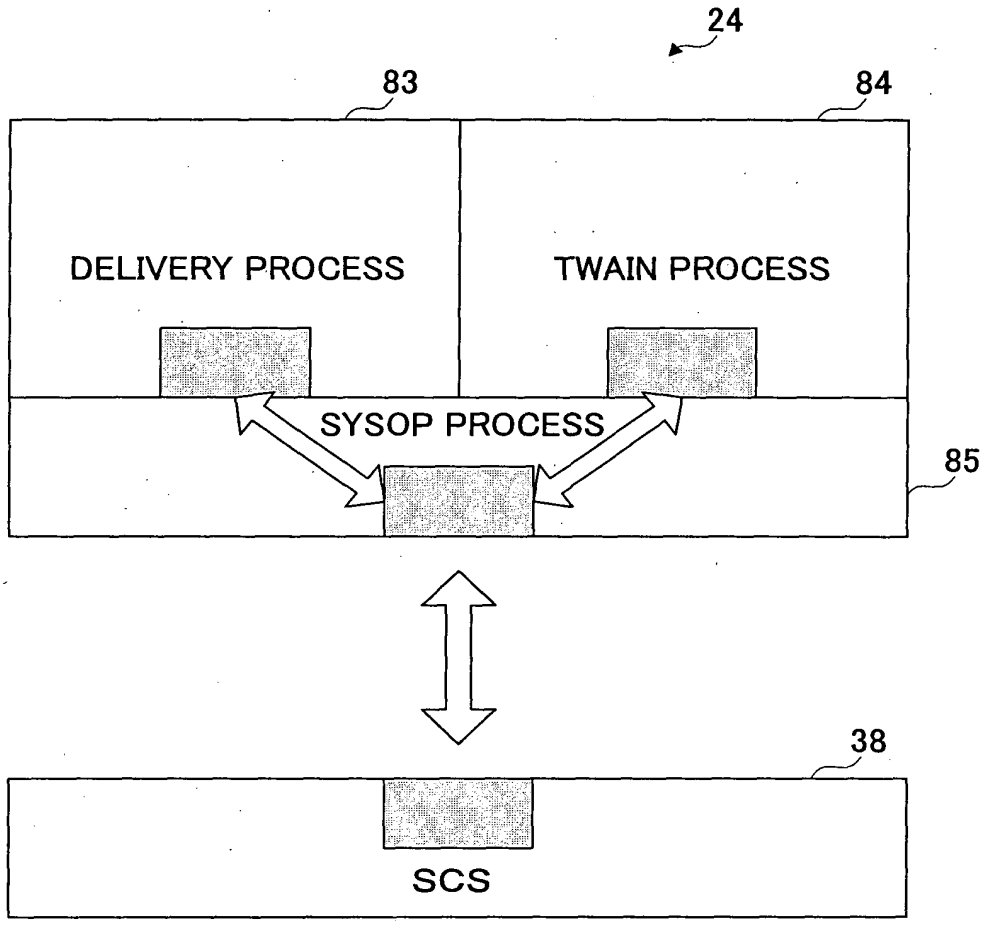

24
83
84
DELIVERY PROCESS
TWAIN PROCESS
SYSOP PROCESS
85
38
SCS

FIG.21

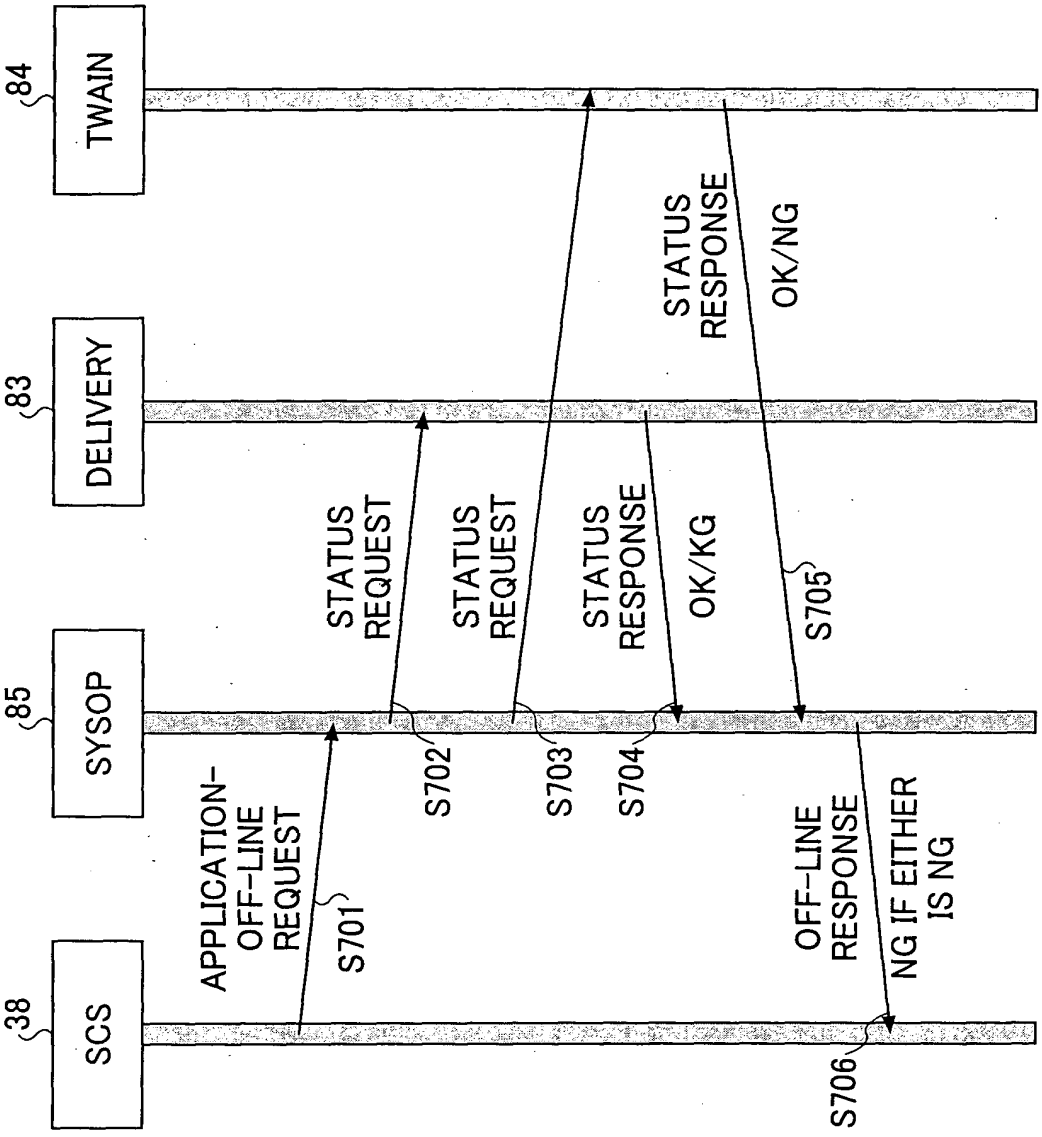

84
TWAIN
83
DELIVERY
85
SYSOP
38
SCS
APPLICATION-OFF-LINE REQUEST
S701
STATUS REQUEST
S702
STATUS REQUEST
S703
STATUS RESPONSE
S704
OK/KG
STATUS RESPONSE
OK/NG
S705
OFF-LINE RESPONSE
NG IF EITHER IS NG
S706

FIG.22

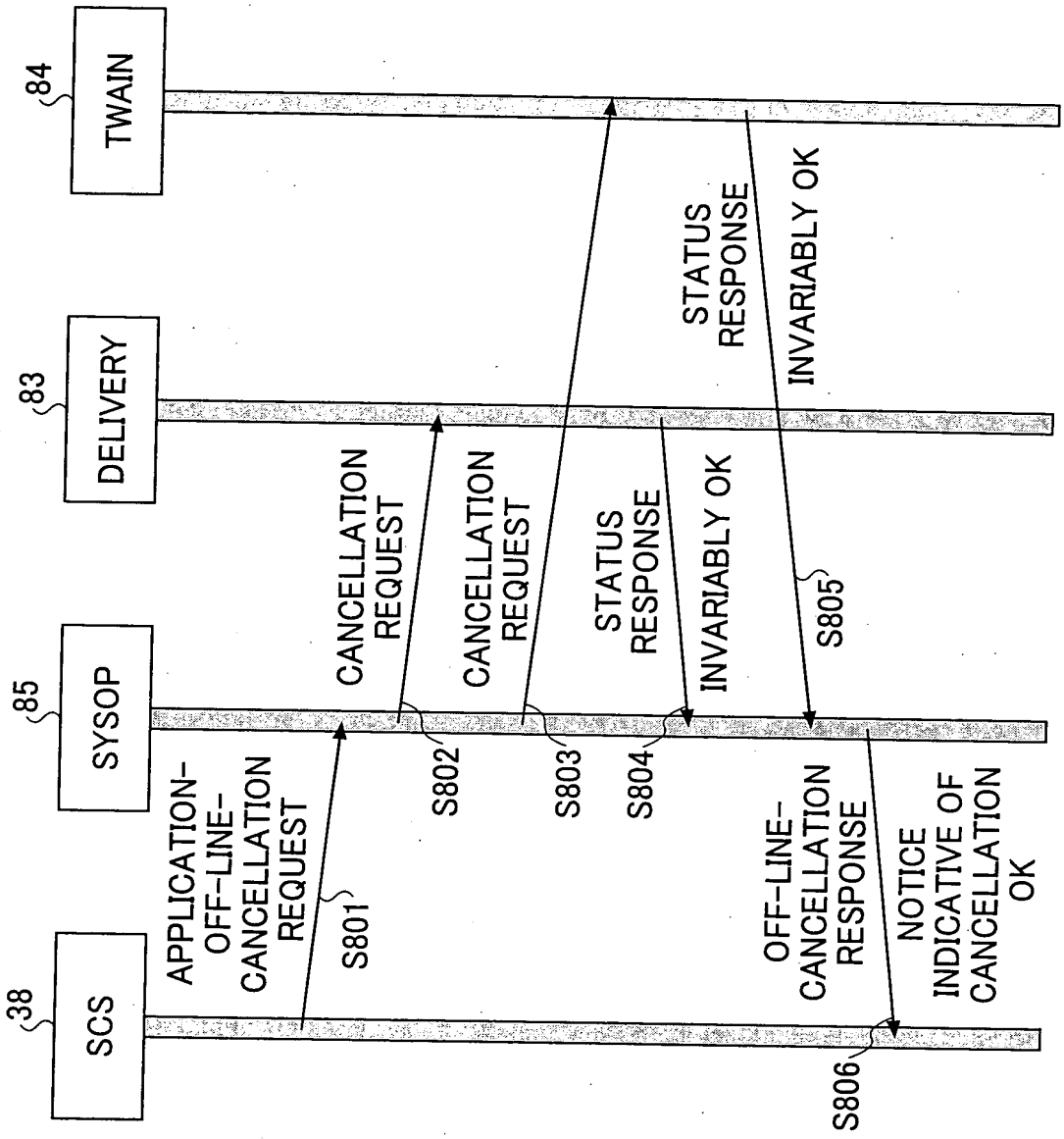

84
TWAIN
83
DELIVERY
85
SYSOP
38
SCS
APPLICATION-OFF-LINE-CANCELLATION REQUEST
S801
CANCELLATION REQUEST
S802
CANCELLATION REQUEST
S803
STATUS RESPONSE
S804
INVARIABLY OK
S805
STATUS RESPONSE
INVARIABLY OK
OFF-LINE-CANCELLATION RESPONSE
NOTICE INDICATIVE OF CANCELLATION OK
S806

FIG.23

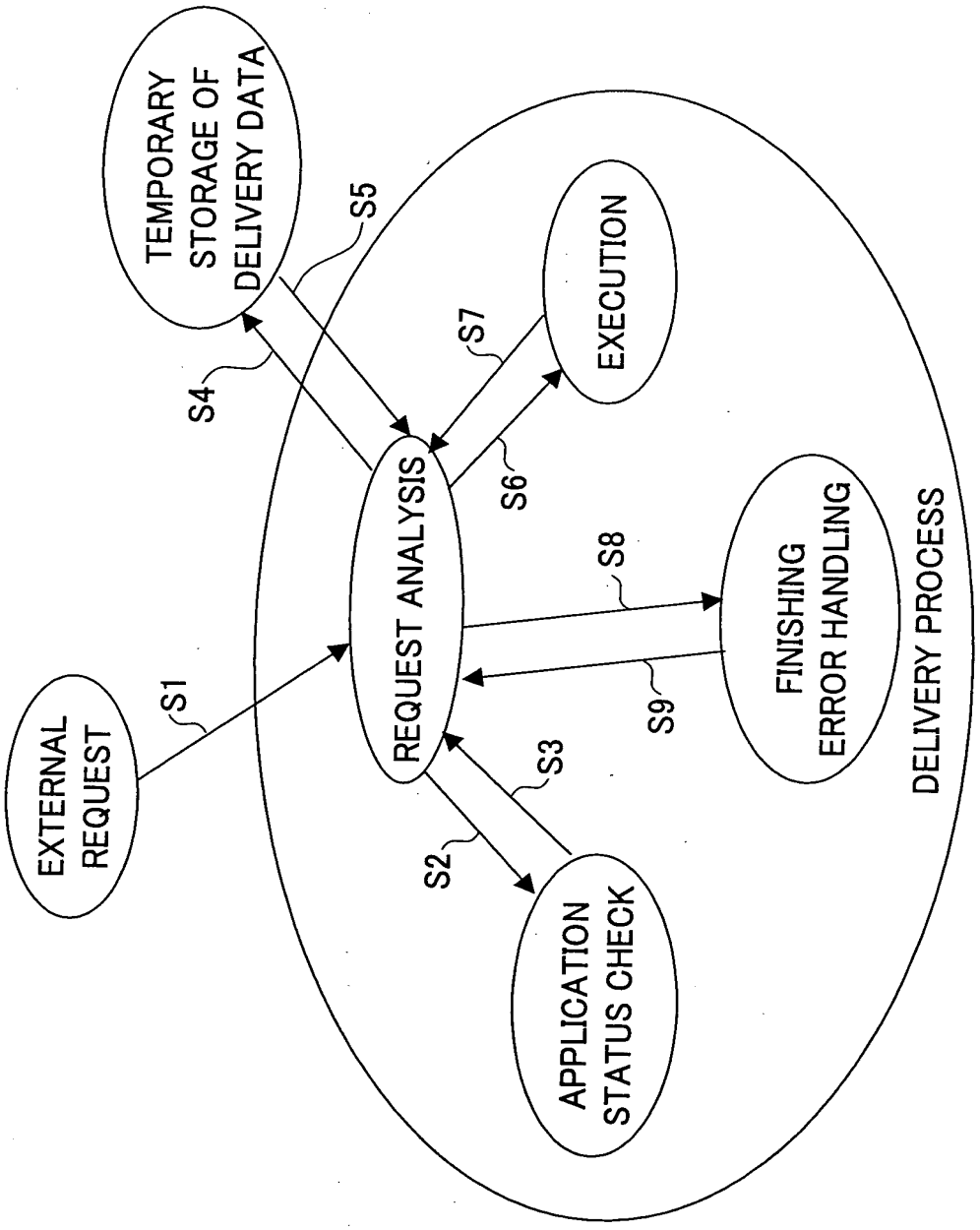

EXTERNAL REQUEST
S1
TEMPORARY STORAGE OF DELIVERY DATA
S4
S5
REQUEST ANALYSIS
S2
S3
APPLICATION STATUS CHECK
S6
S7
EXECUTION
S8
S9
FINISHING ERROR HANDLING
DELIVERY PROCESS

FIG.24

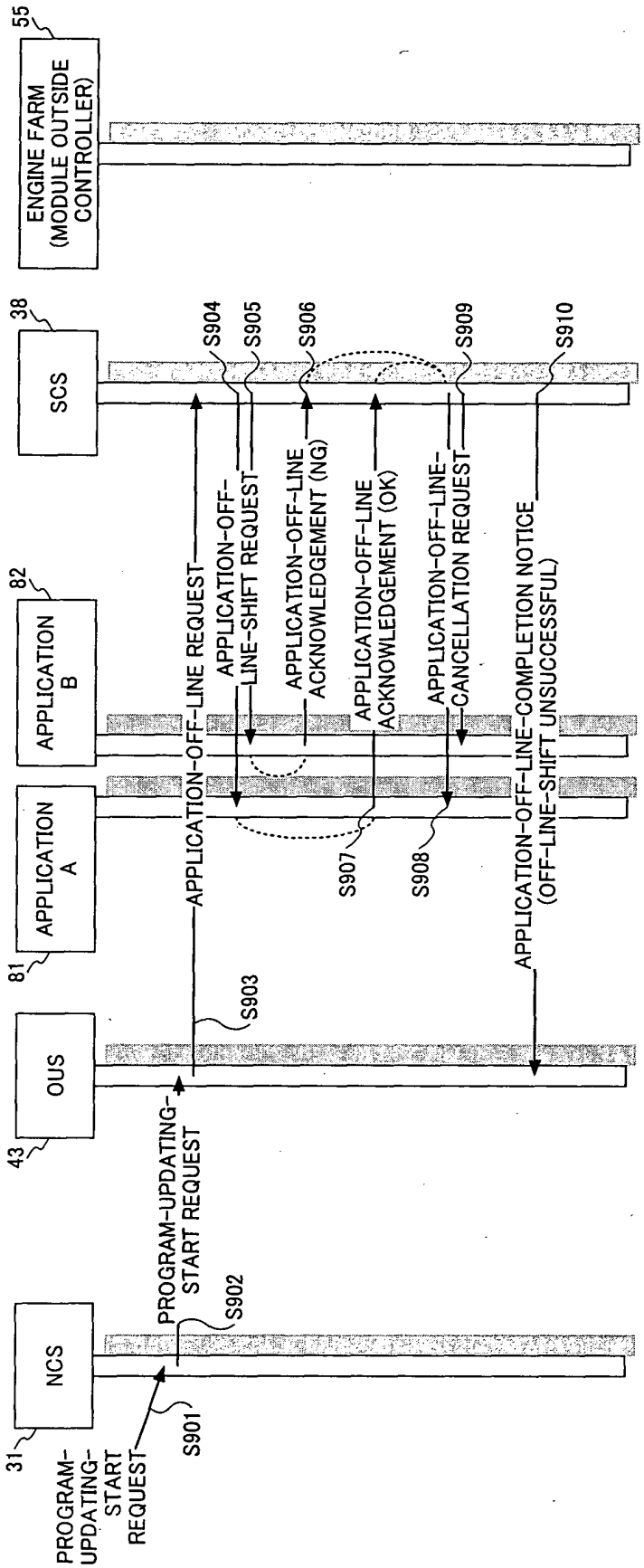

PROGRAM-UPDATING-START REQUEST
31
NCS
S901
PROGRAM-UPDATING-START REQUEST
S902
43
OUS
S903
APPLICATION-OFF-LINE REQUEST
81
APPLICATION A
82
APPLICATION B
APPLICATION-OFF-LINE-SHIFT REQUEST
APPLICATION-OFF-LINE ACKNOWLEDGEMENT (NG)
APPLICATION-OFF-LINE ACKNOWLEDGEMENT (OK)
APPLICATION-OFF-LINE-CANCELLATION REQUEST
APPLICATION-OFF-LINE-COMPLETION NOTICE (OFF-LINE-SHIFT UNSUCCESSFUL)
S904
S905
S906
S907
S908
S909
S910
38
SCS
55
ENGINE FARM (MODULE OUTSIDE CONTROLLER)

FIG.25

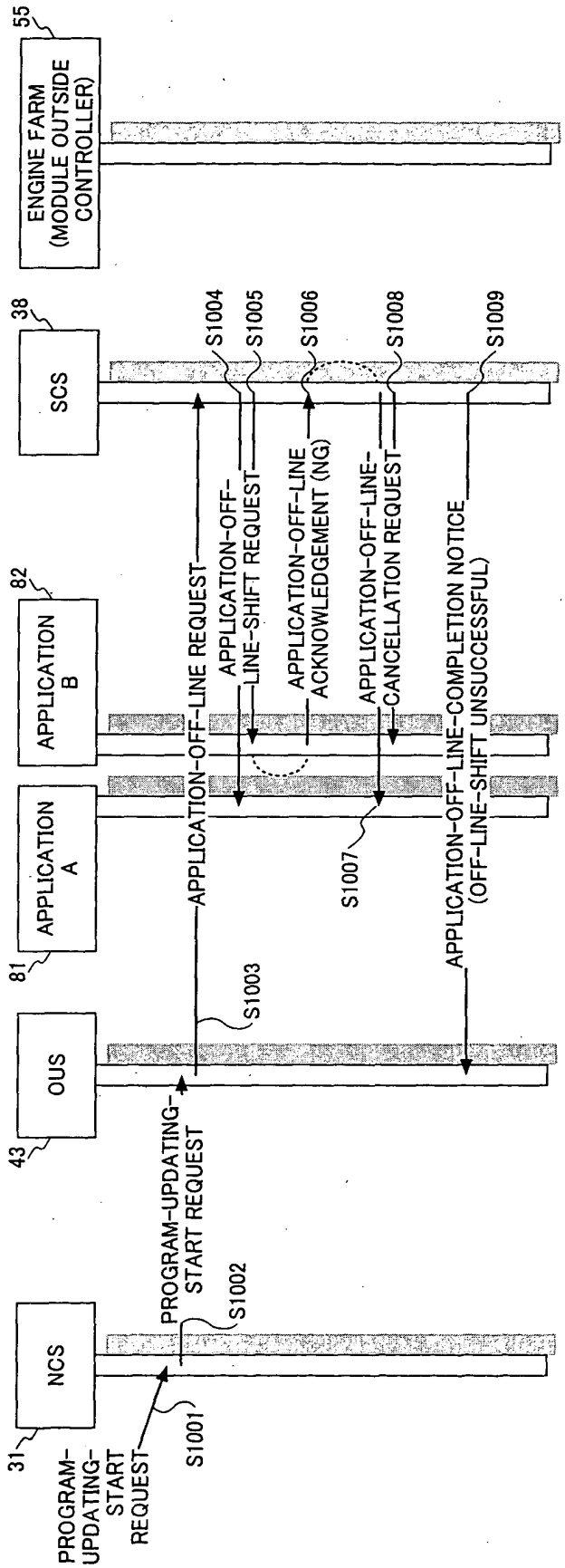

55
ENGINE FARM (MODULE OUTSIDE CONTROLLER)
38
SCS
82
APPLICATION B
81
APPLICATION A
43
OUS
31
NCS
PROGRAM-UPDATING-START REQUEST
S1001
PROGRAM-UPDATING-START REQUEST
S1002
APPLICATION-OFF-LINE REQUEST
S1003
APPLICATION-OFF-LINE REQUEST
S1004
APPLICATION-OFF-LINE-SHIFT REQUEST
S1005
APPLICATION-OFF-LINE ACKNOWLEDGEMENT (NG)
S1006
S1007
APPLICATION-OFF-LINE-CANCELLATION REQUEST
S1008
APPLICATION-OFF-LINE-COMPLETION NOTICE (OFF-LINE-SHIFT UNSUCCESSFUL)
S1009

FIG.26

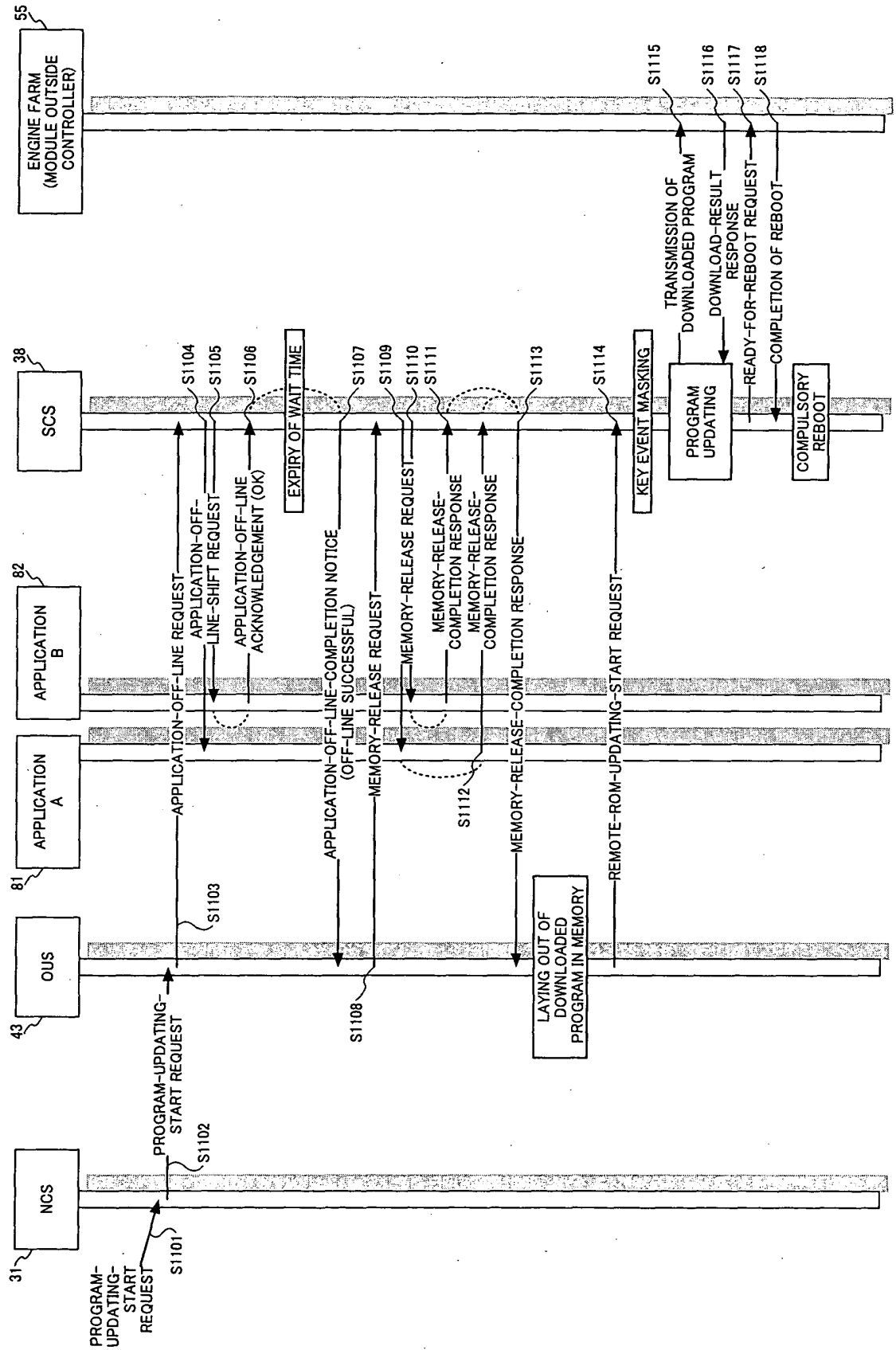

31
NCS
43
OUS
81
APPLICATION A
82
APPLICATION B
38
SCS
55
ENGINE FARM (MODULE OUTSIDE CONTROLLER)
PROGRAM-UPDATING-START REQUEST
S1101
PROGRAM-UPDATING-START REQUEST
S1102
APPLICATION-OFF-LINE REQUEST
S1103
APPLICATION-OFF-LINE-COMPLETION NOTICE (OFF-LINE SUCCESSFUL)
S1108
LAYING OUT OF DOWNLOADED PROGRAM IN MEMORY
REMOTE-ROM-UPDATING-START REQUEST
S1104
APPLICATION-OFF-LINE ACKNOWLEDGEMENT (OK)
S1105
LINE-SHIFT REQUEST
S1106
EXPIRY OF WAIT TIME
S1107
MEMORY-RELEASE REQUEST
S1109
MEMORY-RELEASE-COMPLETION RESPONSE
S1110
MEMORY-RELEASE REQUEST
S1111
MEMORY-RELEASE-COMPLETION RESPONSE
S1112
MEMORY-RELEASE-COMPLETION RESPONSE
S1113
S1114
KEY EVENT MASKING
PROGRAM UPDATING
S1115
TRANSMISSION OF DOWNLOADED PROGRAM
S1116
DOWNLOAD-RESULT RESPONSE
S1117
READY-FOR-REBOOT REQUEST
S1118
COMPLETION OF REBOOT
COMPULSORY REBOOT

FIG.27

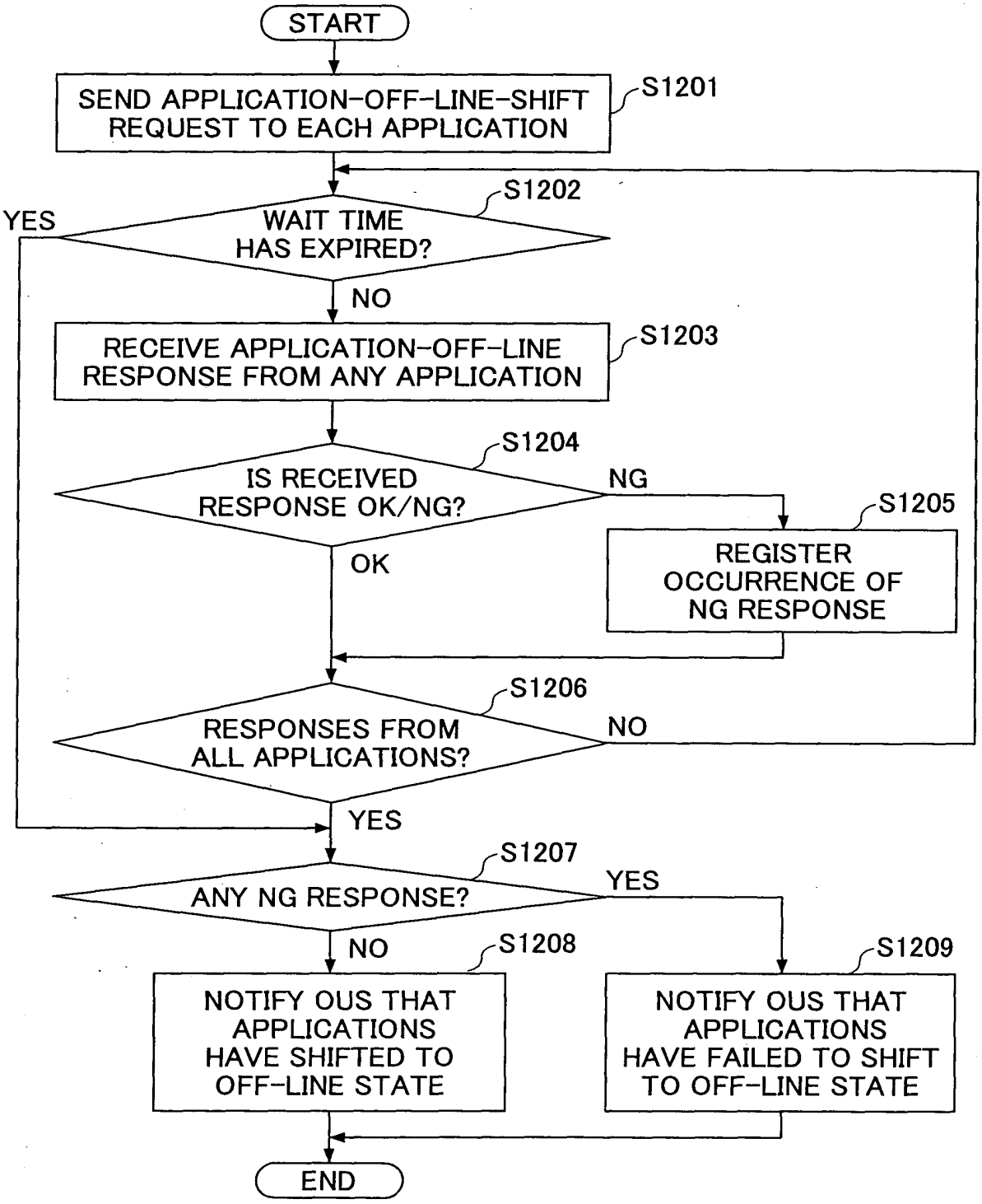

START
SEND APPLICATION-OFF-LINE-SHIFT REQUEST TO EACH APPLICATION
S1201
S1202
WAIT TIME HAS EXPIRED?
YES
NO
RECEIVE APPLICATION-OFF-LINE RESPONSE FROM ANY APPLICATION
S1203
S1204
IS RECEIVED RESPONSE OK/NG?
NG
OK
S1205
REGISTER OCCURRENCE OF NG RESPONSE
S1206
RESPONSES FROM ALL APPLICATIONS?
NO
YES
S1207
ANY NG RESPONSE?
YES
NO
S1208
NOTIFY OUS THAT APPLICATIONS HAVE SHIFTED TO OFF-LINE STATE
S1209
NOTIFY OUS THAT APPLICATIONS HAVE FAILED TO SHIFT TO OFF-LINE STATE
END

FIG.28

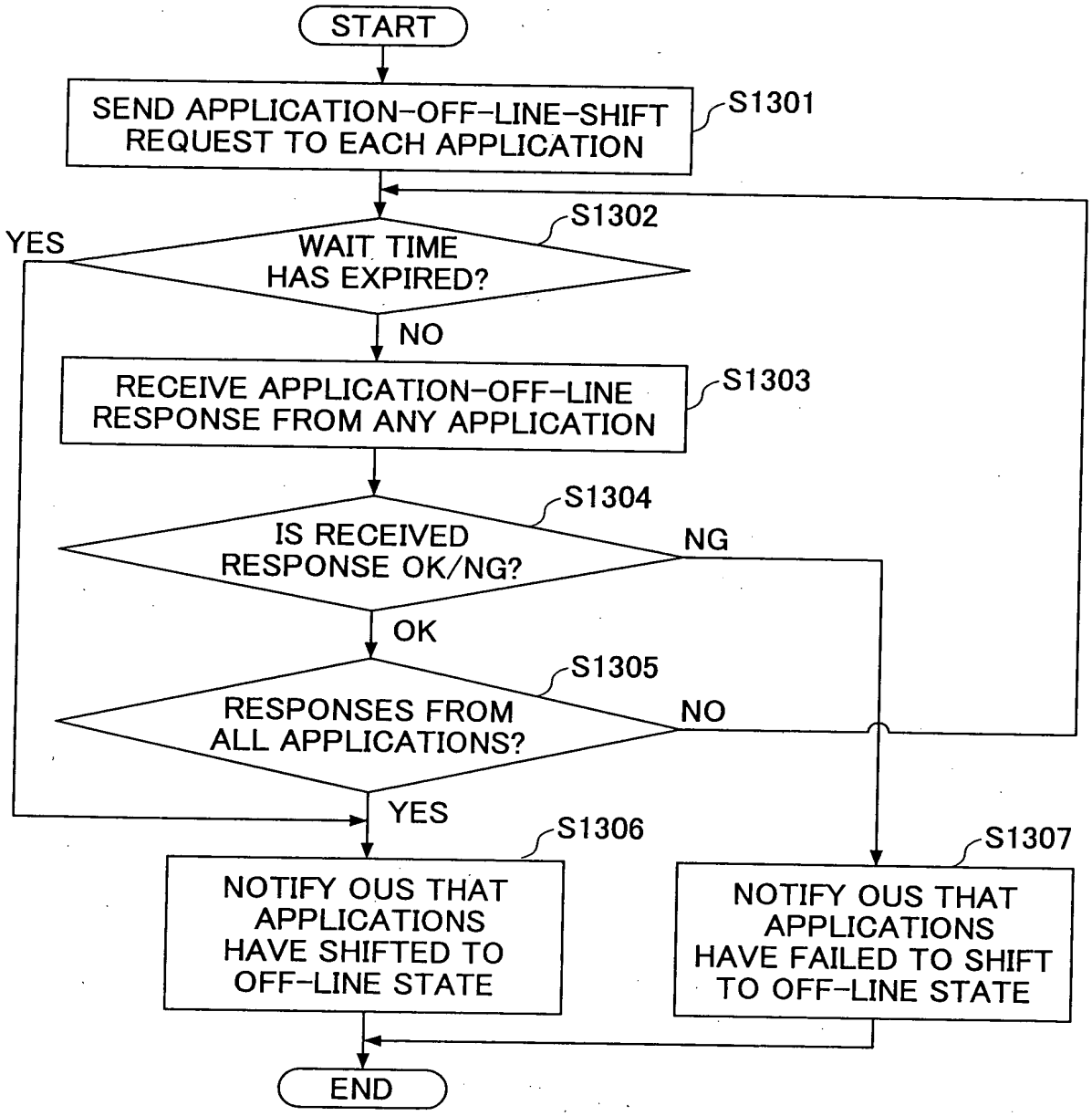

START
SEND APPLICATION-OFF-LINE-SHIFT REQUEST TO EACH APPLICATION
S1301
S1302
WAIT TIME HAS EXPIRED?
YES
NO
RECEIVE APPLICATION-OFF-LINE RESPONSE FROM ANY APPLICATION
S1303
S1304
IS RECEIVED RESPONSE OK/NG?
NG
OK
S1305
RESPONSES FROM ALL APPLICATIONS?
NO
YES
S1306
NOTIFY OUS THAT APPLICATIONS HAVE SHIFTED TO OFF-LINE STATE
S1307
NOTIFY OUS THAT APPLICATIONS HAVE FAILED TO SHIFT TO OFF-LINE STATE
END

FIG.29

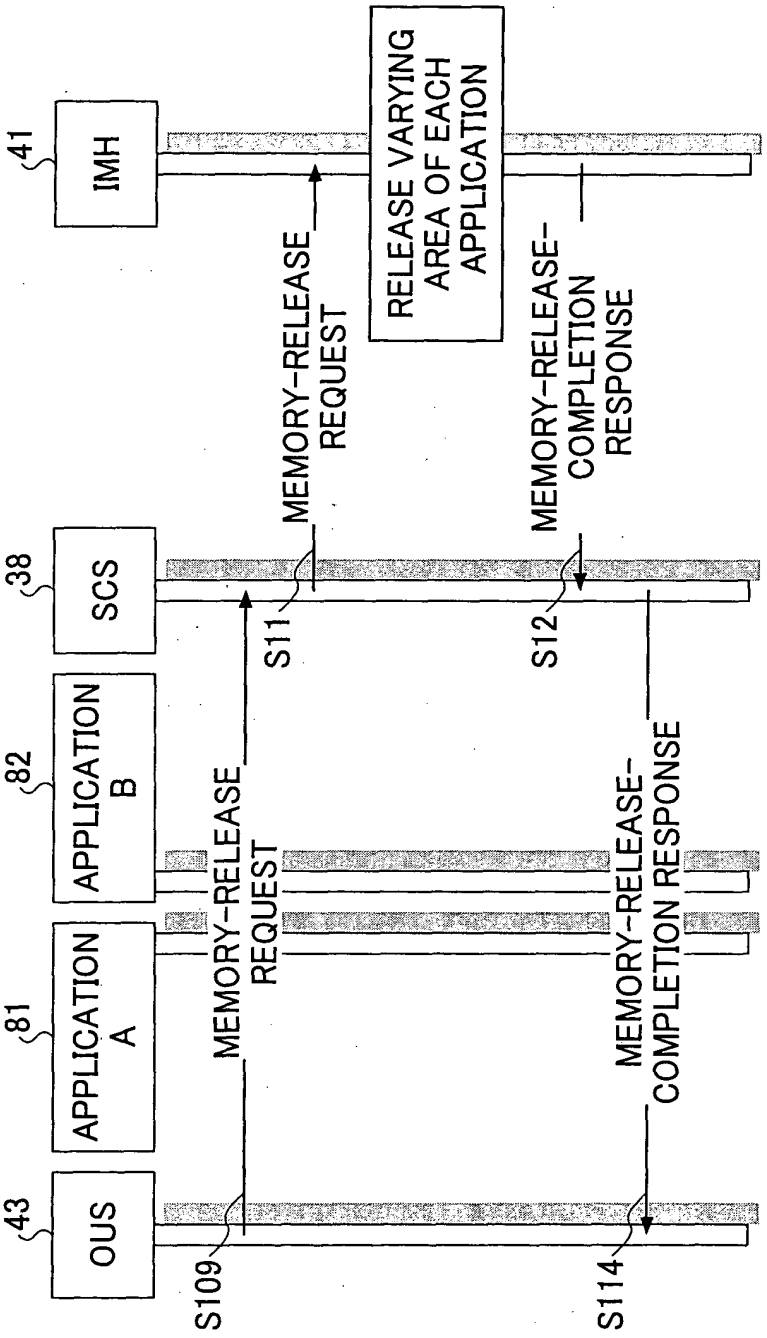

41
IMH
RELEASE VARYING AREA OF EACH APPLICATION
MEMORY-RELEASE REQUEST
MEMORY-RELEASE-COMPLETION RESPONSE
38
SCS
S11
S12
82
APPLICATION B
MEMORY-RELEASE REQUEST
MEMORY-RELEASE-COMPLETION RESPONSE
81
APPLICATION A
43
OUS
S109
S114

FIG.30

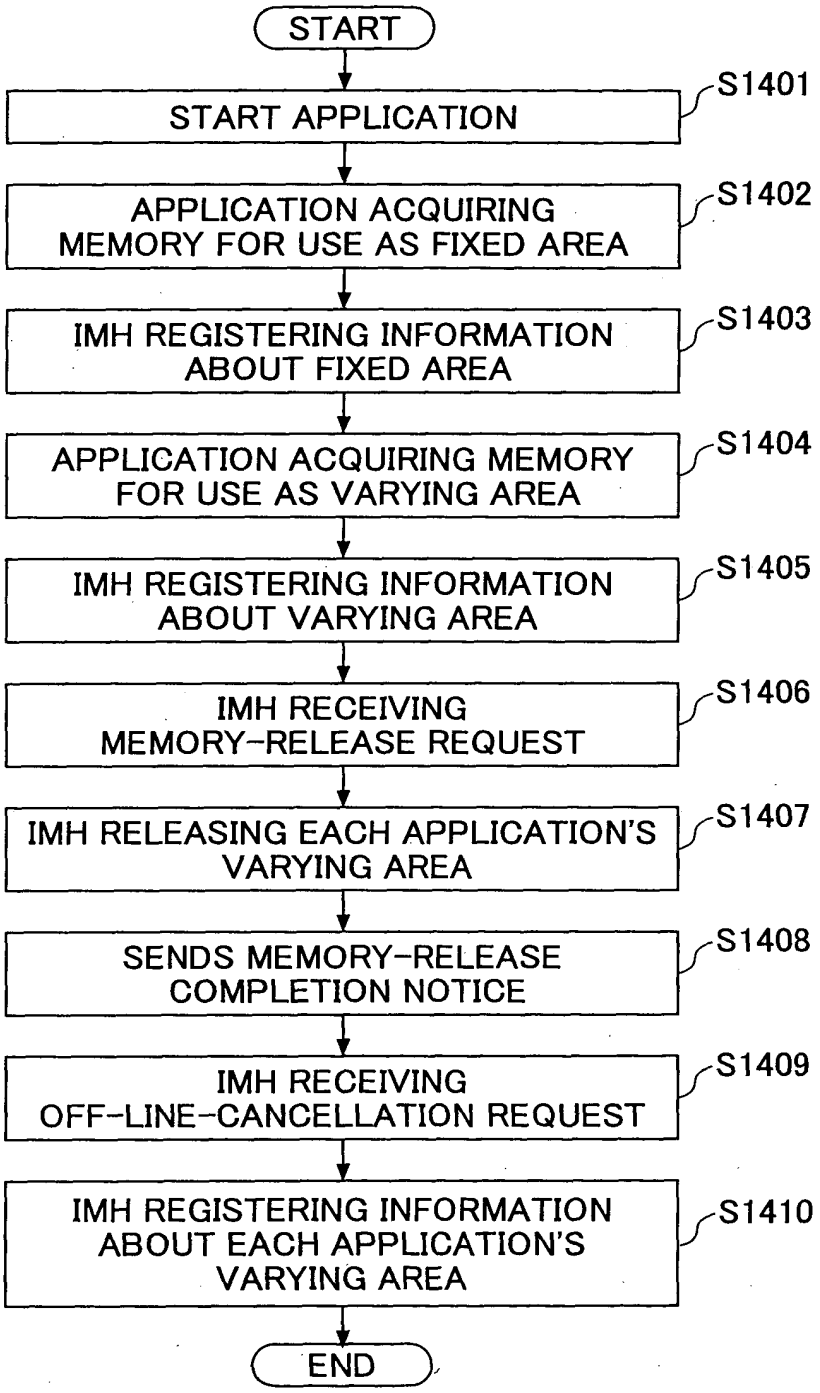

START
START APPLICATION
S1401
APPLICATION ACQUIRING MEMORY FOR USE AS FIXED AREA
S1402
IMH REGISTERING INFORMATION ABOUT FIXED AREA
S1403
APPLICATION ACQUIRING MEMORY FOR USE AS VARYING AREA
S1404
IMH REGISTERING INFORMATION ABOUT VARYING AREA
S1405
IMH RECEIVING MEMORY-RELEASE REQUEST
S1406
IMH RELEASING EACH APPLICATION'S VARYING AREA
S1407
SENDS MEMORY-RELEASE COMPLETION NOTICE
S1408
IMH RECEIVING OFF-LINE-CANCELLATION REQUEST
S1409
IMH REGISTERING INFORMATION ABOUT EACH APPLICATION'S VARYING AREA
S1410
END

FIG.31

APPLICATION NAME	APPLICATION A	APPLICATION B	...	APPLICATION N
FIXED AREA START ADDRESS	0x100000	0x250000		0x650000
FIXED AREA END ADDRESS	0x1FFFFF	0x3FFFFF		0x7FFFFF
VARYING AREA START ADDRESS	0x200000	0x400000		0x800000
VARYING AREA END ADDRESS	0x24FFFF	0x47FFFF		0x80FFFF

FIG.32

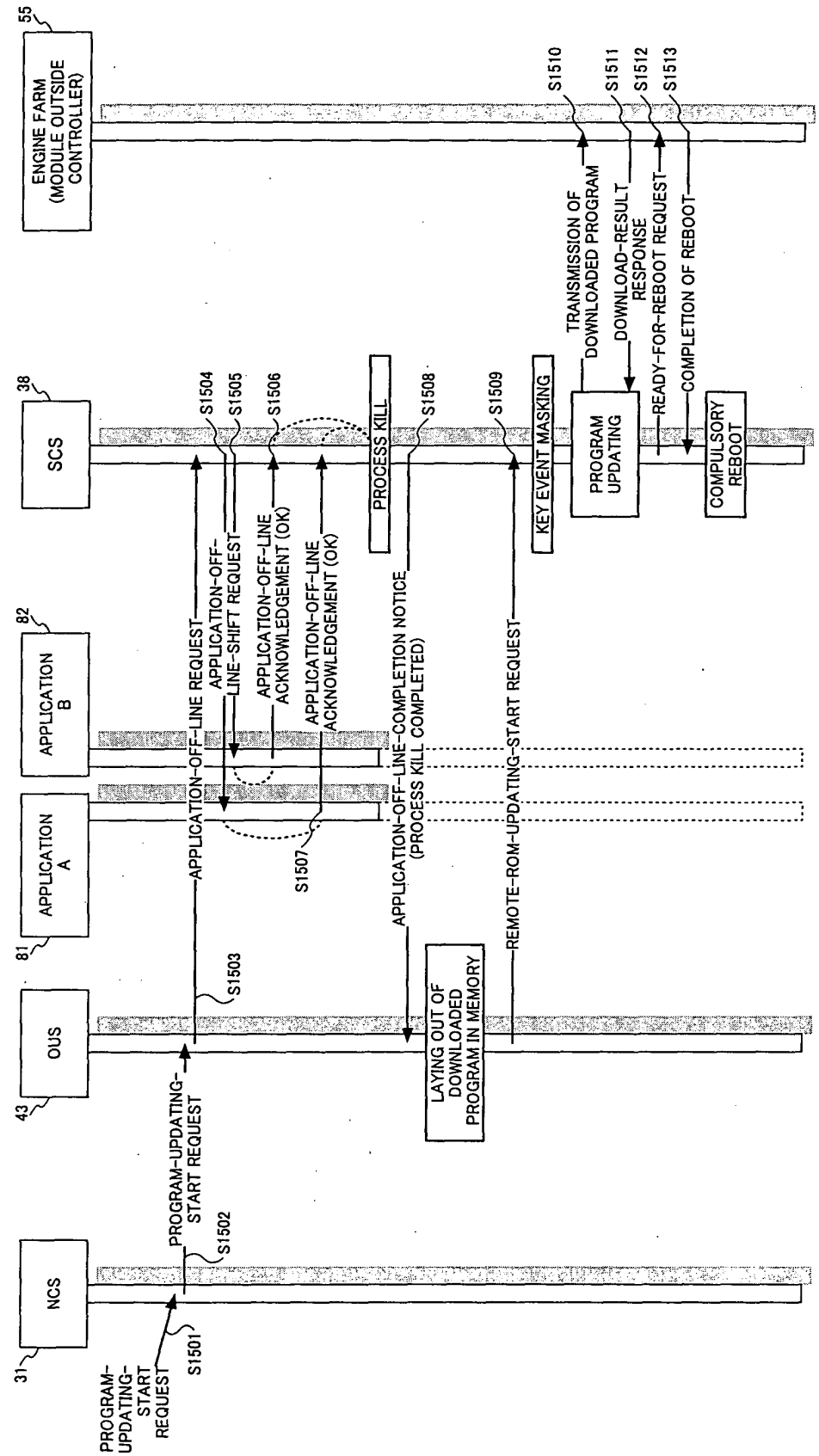

NCS
31
OUS
43
APPLICATION A
81
APPLICATION B
82
SCS
38
ENGINE FARM (MODULE OUTSIDE CONTROLLER)
55
PROGRAM-UPDATING-START REQUEST
S1501
PROGRAM-UPDATING-START REQUEST
S1502
APPLICATION-OFF-LINE REQUEST
S1503
APPLICATION-OFF-LINE REQUEST ACKNOWLEDGEMENT (OK)
S1504
APPLICATION-OFF-LINE-SHIFT REQUEST
S1505
APPLICATION-OFF-LINE ACKNOWLEDGEMENT (OK)
S1506
S1507
PROCESS KILL
S1508
APPLICATION-OFF-LINE-COMPLETION NOTICE (PROCESS KILL COMPLETED)
LAYING OUT OF DOWNLOADED PROGRAM IN MEMORY
REMOTE-ROM-UPDATING-START REQUEST
S1509
KEY EVENT MASKING
PROGRAM UPDATING
TRANSMISSION OF DOWNLOADED PROGRAM
S1510
DOWNLOAD-RESULT RESPONSE
S1511
READY-FOR-REBOOT REQUEST
S1512
COMPLETION OF REBOOT
S1513
COMPULSORY REBOOT

FIG.33

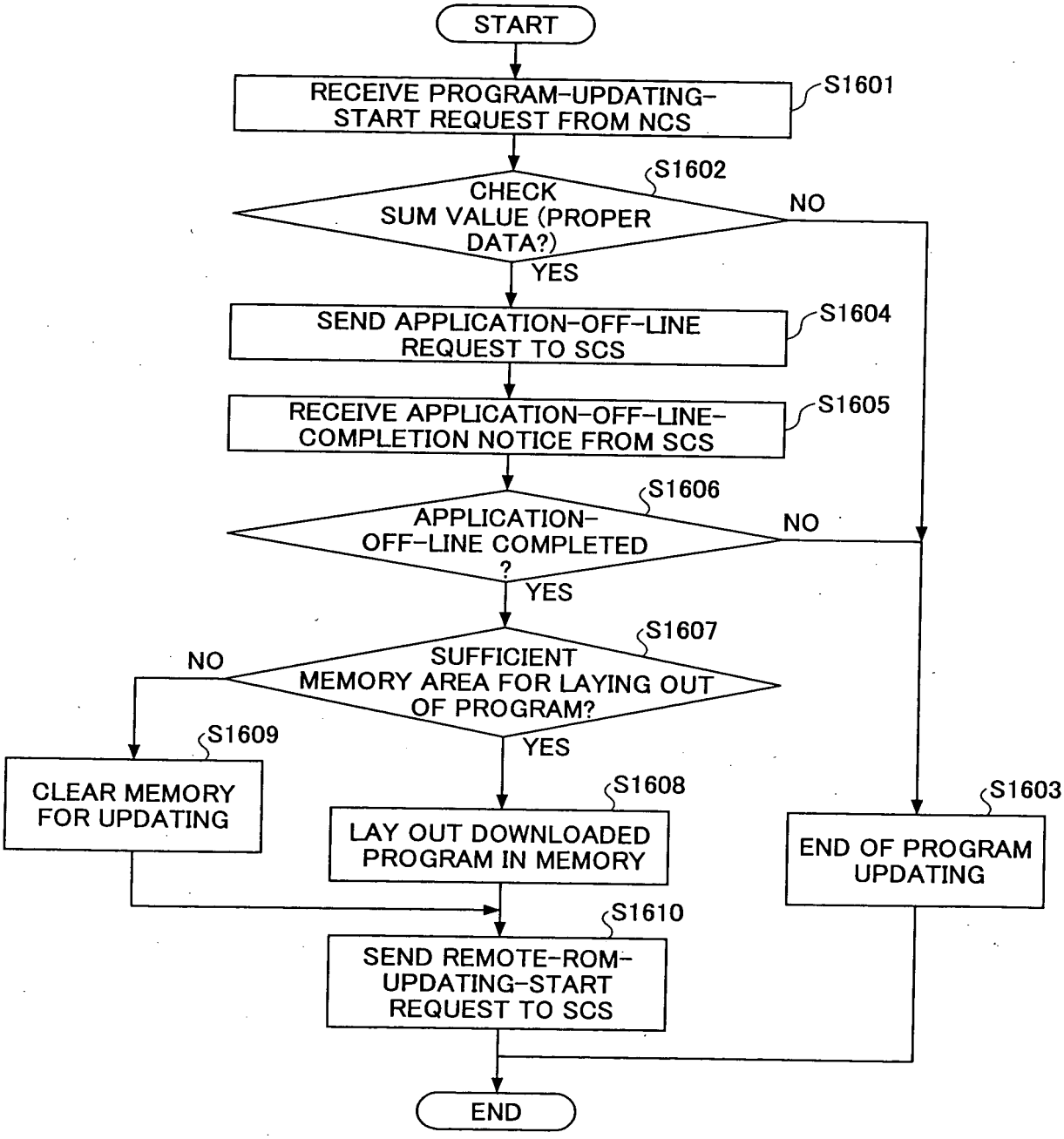

START
RECEIVE PROGRAM-UPDATING-START REQUEST FROM NCS
S1601
CHECK SUM VALUE (PROPER DATA?)
S1602
NO
YES
SEND APPLICATION-OFF-LINE REQUEST TO SCS
S1604
RECEIVE APPLICATION-OFF-LINE-COMPLETION NOTICE FROM SCS
S1605
APPLICATION-OFF-LINE COMPLETED ?
S1606
NO
YES
SUFFICIENT MEMORY AREA FOR LAYING OUT OF PROGRAM?
S1607
NO
YES
CLEAR MEMORY FOR UPDATING
S1609
LAY OUT DOWNLOADED PROGRAM IN MEMORY
S1608
END OF PROGRAM UPDATING
S1603
SEND REMOTE-ROM-UPDATING-START REQUEST TO SCS
S1610
END

FIG.34

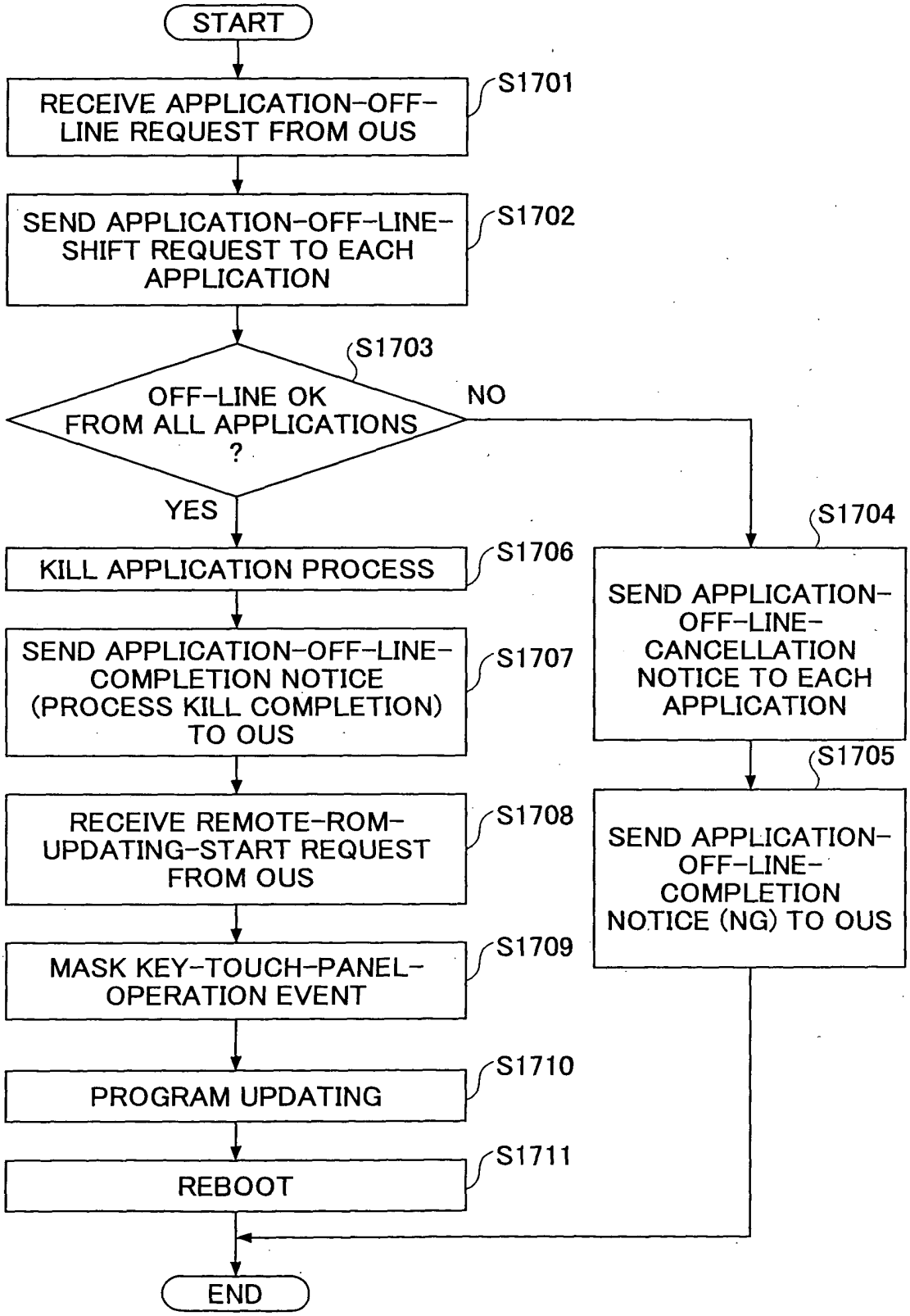

START
RECEIVE APPLICATION-OFF-LINE REQUEST FROM OUS
S1701
SEND APPLICATION-OFF-LINE-SHIFT REQUEST TO EACH APPLICATION
S1702
S1703
OFF-LINE OK FROM ALL APPLICATIONS ?
NO
YES
S1704
KILL APPLICATION PROCESS
S1706
SEND APPLICATION-OFF-LINE-CANCELLATION NOTICE TO EACH APPLICATION
SEND APPLICATION-OFF-LINE-COMPLETION NOTICE (PROCESS KILL COMPLETION) TO OUS
S1707
S1705
RECEIVE REMOTE-ROM-UPDATING-START REQUEST FROM OUS
S1708
SEND APPLICATION-OFF-LINE-COMPLETION NOTICE (NG) TO OUS
MASK KEY-TOUCH-PANEL-OPERATION EVENT
S1709
PROGRAM UPDATING
S1710
REBOOT
S1711
END

FIG.35

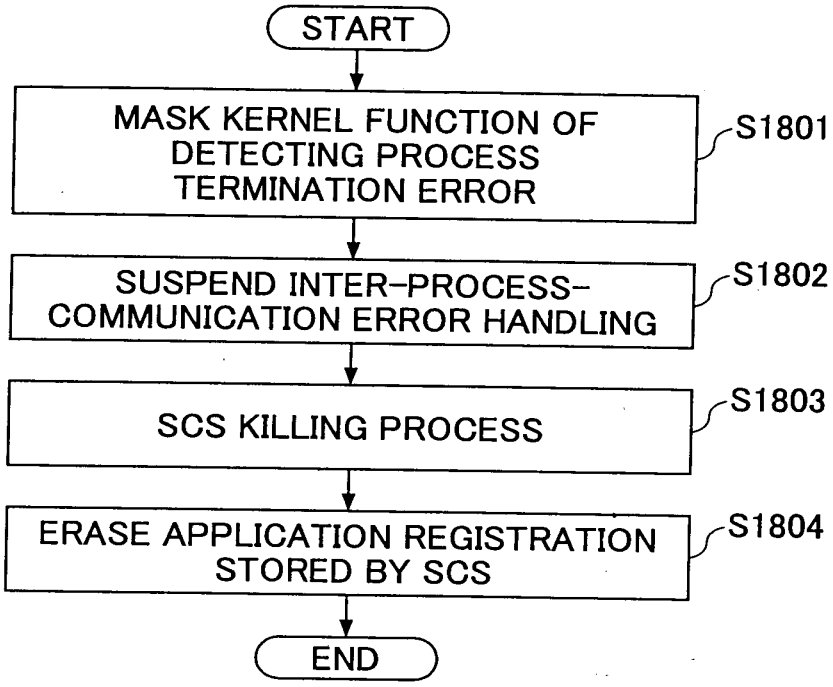

START
MASK KERNEL FUNCTION OF DETECTING PROCESS TERMINATION ERROR
S1801
SUSPEND INTER-PROCESS-COMMUNICATION ERROR HANDLING
S1802
SCS KILLING PROCESS
S1803
ERASE APPLICATION REGISTRATION STORED BY SCS
S1804
END

FIG.36

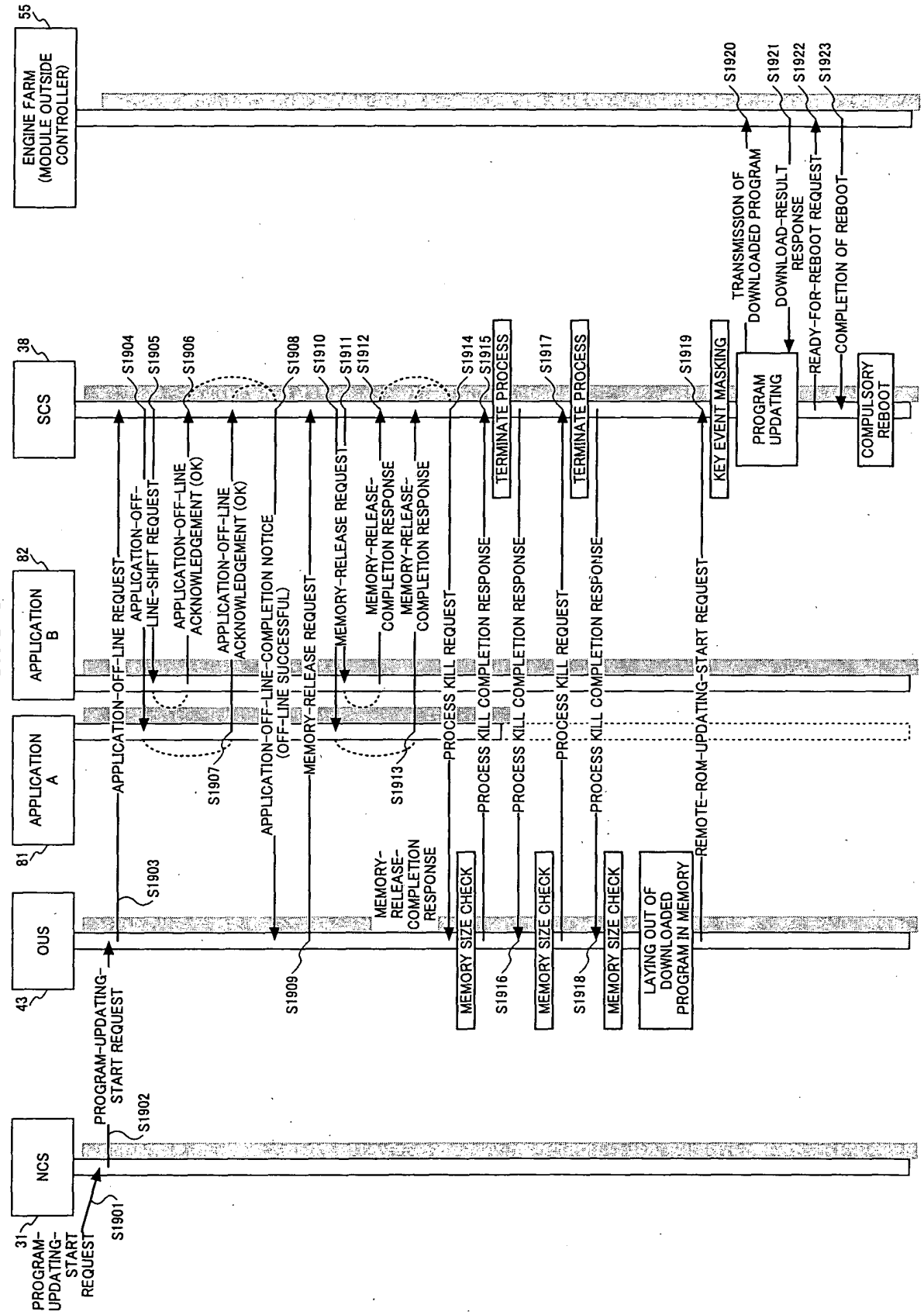

31
PROGRAM-UPDATING-START REQUEST
NCS
43
OUS
81
APPLICATION A
82
APPLICATION B
38
SCS
55
ENGINE FARM (MODULE OUTSIDE CONTROLLER)
PROGRAM-UPDATING-START REQUEST
S1901
S1902
APPLICATION-OFF-LINE REQUEST
S1903
APPLICATION-OFF-LINE-COMPLETION NOTICE (OFF-LINE SUCCESSFUL)
S1904
APPLICATION-OFF-LINE-SHIFT REQUEST
S1905
APPLICATION-OFF-LINE ACKNOWLEDGEMENT (OK)
S1906
S1907
APPLICATION-OFF-LINE ACKNOWLEDGEMENT (OK)
S1908
MEMORY-RELEASE REQUEST
S1909
MEMORY-RELEASE REQUEST
S1910
MEMORY-RELEASE-COMPLETION RESPONSE
S1911
MEMORY-RELEASE-COMPLETION RESPONSE
S1912
S1913
MEMORY-RELEASE-COMPLETION RESPONSE
PROCESS KILL REQUEST
S1914
MEMORY SIZE CHECK
PROCESS KILL COMPLETION RESPONSE
S1915
TERMINATE PROCESS
S1916
MEMORY SIZE CHECK
PROCESS KILL COMPLETION RESPONSE
S1917
TERMINATE PROCESS
S1918
MEMORY SIZE CHECK
PROCESS KILL COMPLETION RESPONSE
LAYING OUT OF DOWNLOADED PROGRAM IN MEMORY
REMOTE-ROM-UPDATING-START REQUEST
S1919
KEY EVENT MASKING
S1920
TRANSMISSION OF DOWNLOADED PROGRAM
PROGRAM UPDATING
S1921
DOWNLOAD-RESULT RESPONSE
S1922
READY-FOR-REBOOT REQUEST
S1923
COMPLETION OF REBOOT
COMPULSORY REBOOT

FIG.37

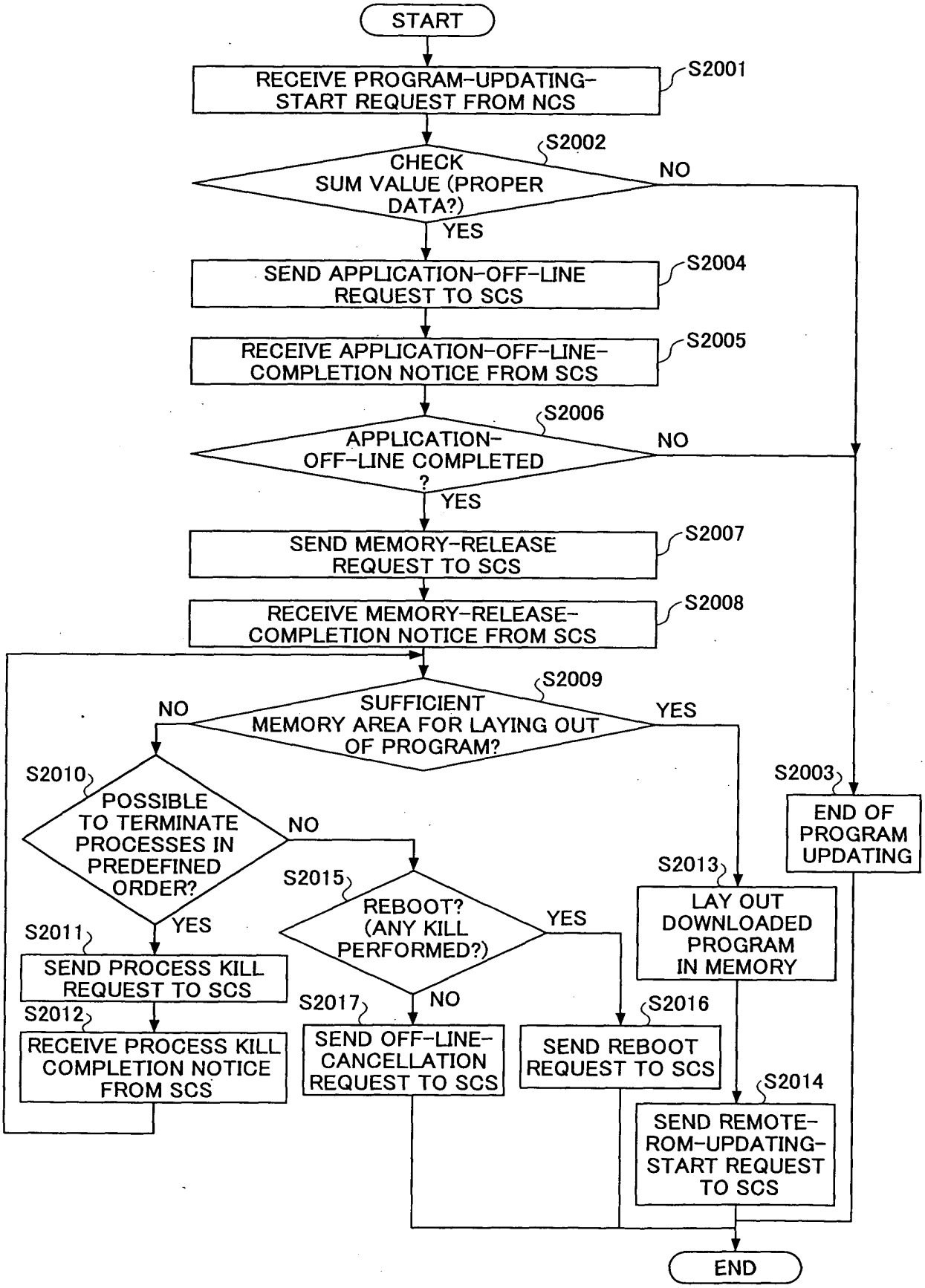
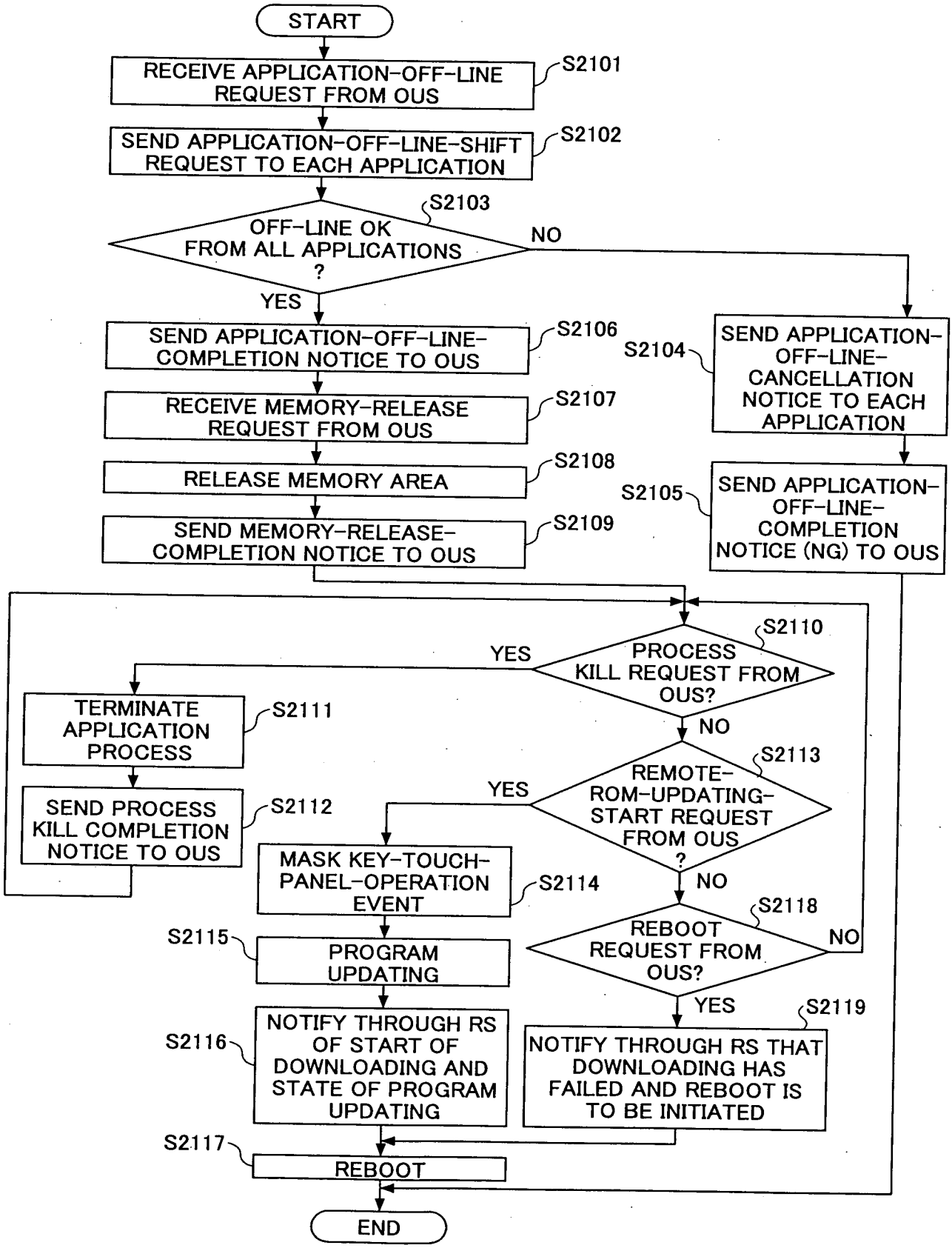

START
RECEIVE PROGRAM-UPDATING-START REQUEST FROM NCS
S2001
CHECK SUM VALUE (PROPER DATA?)
S2002
NO
YES
SEND APPLICATION-OFF-LINE REQUEST TO SCS
S2004
RECEIVE APPLICATION-OFF-LINE-COMPLETION NOTICE FROM SCS
S2005
APPLICATION-OFF-LINE COMPLETED ?
S2006
NO
YES
SEND MEMORY-RELEASE REQUEST TO SCS
S2007
RECEIVE MEMORY-RELEASE-COMPLETION NOTICE FROM SCS
S2008
SUFFICIENT MEMORY AREA FOR LAYING OUT OF PROGRAM?
S2009
NO
YES
POSSIBLE TO TERMINATE PROCESSES IN PREDEFINED ORDER?
S2010
NO
YES
SEND PROCESS KILL REQUEST TO SCS
S2011
RECEIVE PROCESS KILL COMPLETION NOTICE FROM SCS
S2012
REBOOT? (ANY KILL PERFORMED?)
S2015
YES
NO
SEND OFF-LINE-CANCELLATION REQUEST TO SCS
S2017
SEND REBOOT REQUEST TO SCS
S2016
LAY OUT DOWNLOADED PROGRAM IN MEMORY
S2013
SEND REMOTE-ROM-UPDATING-START REQUEST TO SCS
S2014
END OF PROGRAM UPDATING
S2003
END

FIG.38

ORDER OF TERMINATION	DEFAULT	MEMORY SIZE	SHARED MEMORY
1	NET-FILE	COPY	COPY
2	SCANNER	FAX	PRINTER
3	FAX	NET-FILE	FAX
4	COPY	PRINTER	SCANNER
5	PRINTER	SCANNER	NET-FILE

FIG.39


START
RECEIVE APPLICATION-OFF-LINE REQUEST FROM OUS
S2101
SEND APPLICATION-OFF-LINE-SHIFT REQUEST TO EACH APPLICATION
S2102
OFF-LINE OK FROM ALL APPLICATIONS ?
S2103
NO
YES
SEND APPLICATION-OFF-LINE-COMPLETION NOTICE TO OUS
S2106
RECEIVE MEMORY-RELEASE REQUEST FROM OUS
S2107
RELEASE MEMORY AREA
S2108
SEND MEMORY-RELEASE-COMPLETION NOTICE TO OUS
S2109
S2104
SEND APPLICATION-OFF-LINE-CANCELLATION NOTICE TO EACH APPLICATION
S2105
SEND APPLICATION-OFF-LINE-COMPLETION NOTICE (NG) TO OUS
S2110
PROCESS KILL REQUEST FROM OUS?
YES
NO
TERMINATE APPLICATION PROCESS
S2111
SEND PROCESS KILL COMPLETION NOTICE TO OUS
S2112
S2113
REMOTE-ROM-UPDATING-START REQUEST FROM OUS ?
YES
NO
MASK KEY-TOUCH-PANEL-OPERATION EVENT
S2114
S2115
PROGRAM UPDATING
S2116
NOTIFY THROUGH RS OF START OF DOWNLOADING AND STATE OF PROGRAM UPDATING
S2118
REBOOT REQUEST FROM OUS?
NO
YES
S2119
NOTIFY THROUGH RS THAT DOWNLOADING HAS FAILED AND REBOOT IS TO BE INITIATED
S2117
REBOOT
END